

iOS 7 Tech Talks 2013



San Francisco



New York



Tokyo



Shanghai



Berlin



London

These are confidential sessions—please refrain from streaming, blogging, or taking pictures

Architecting Modern iOS Apps

Part 1

Dave DeLong
App Frameworks Evangelist

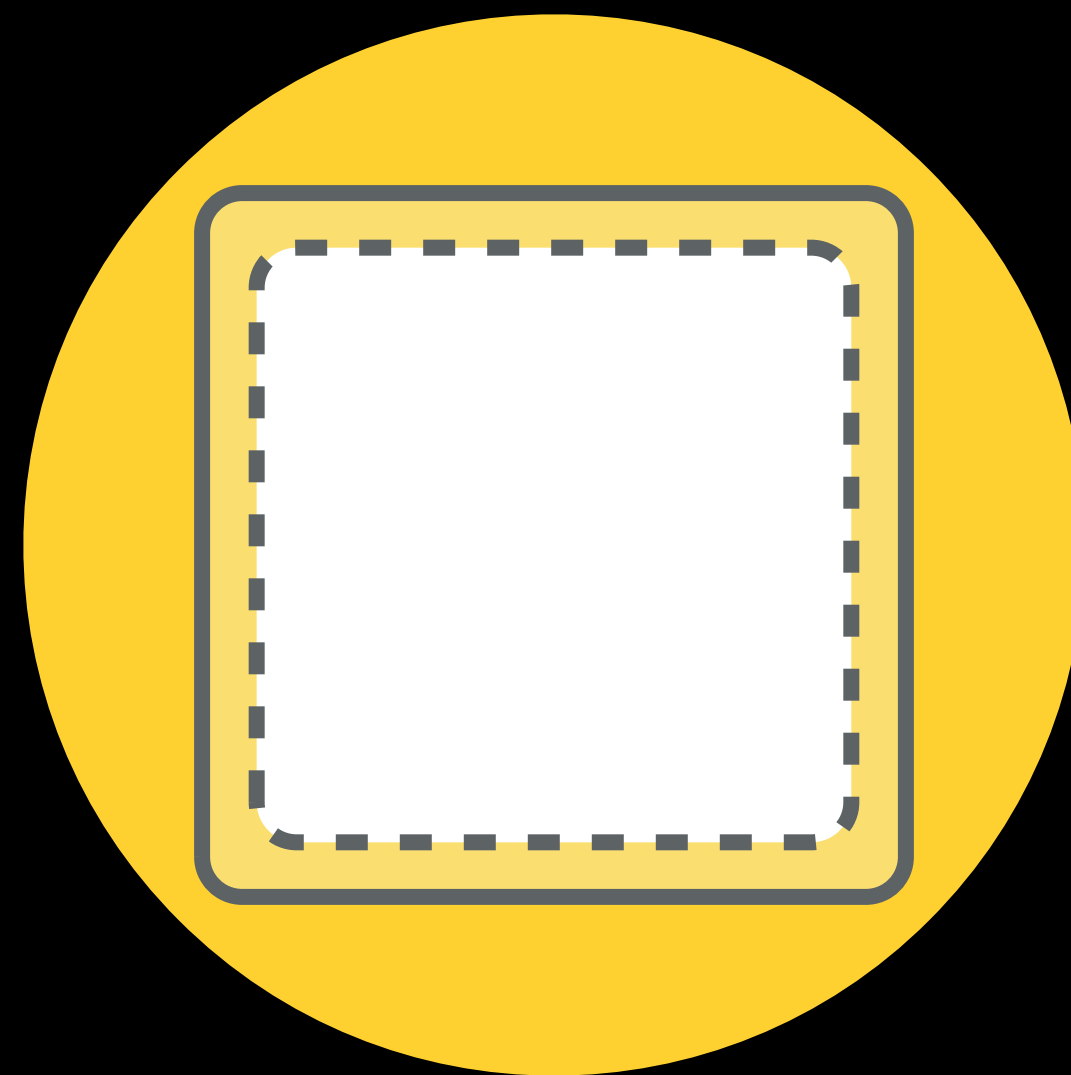
These are confidential sessions—please refrain from streaming, blogging, or taking pictures



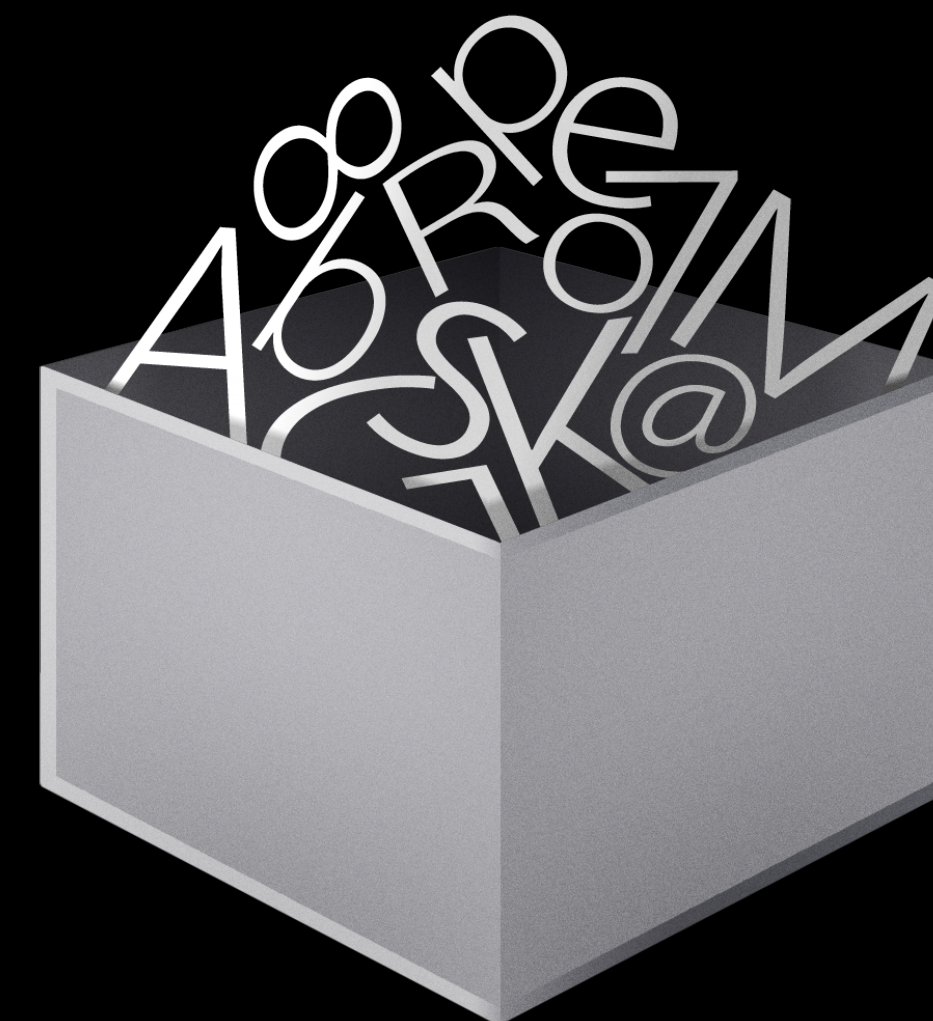




Motion



UIViewController



Text Kit



Motion



Motion Effects

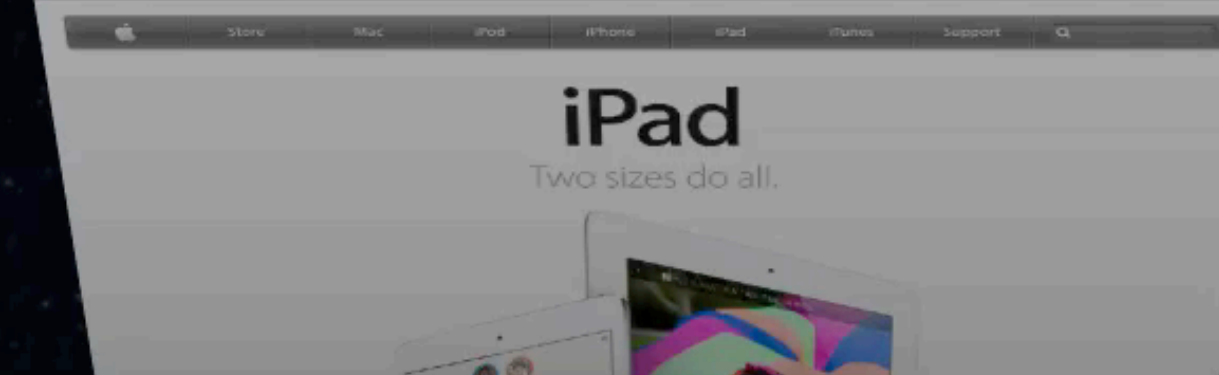


9:41 AM

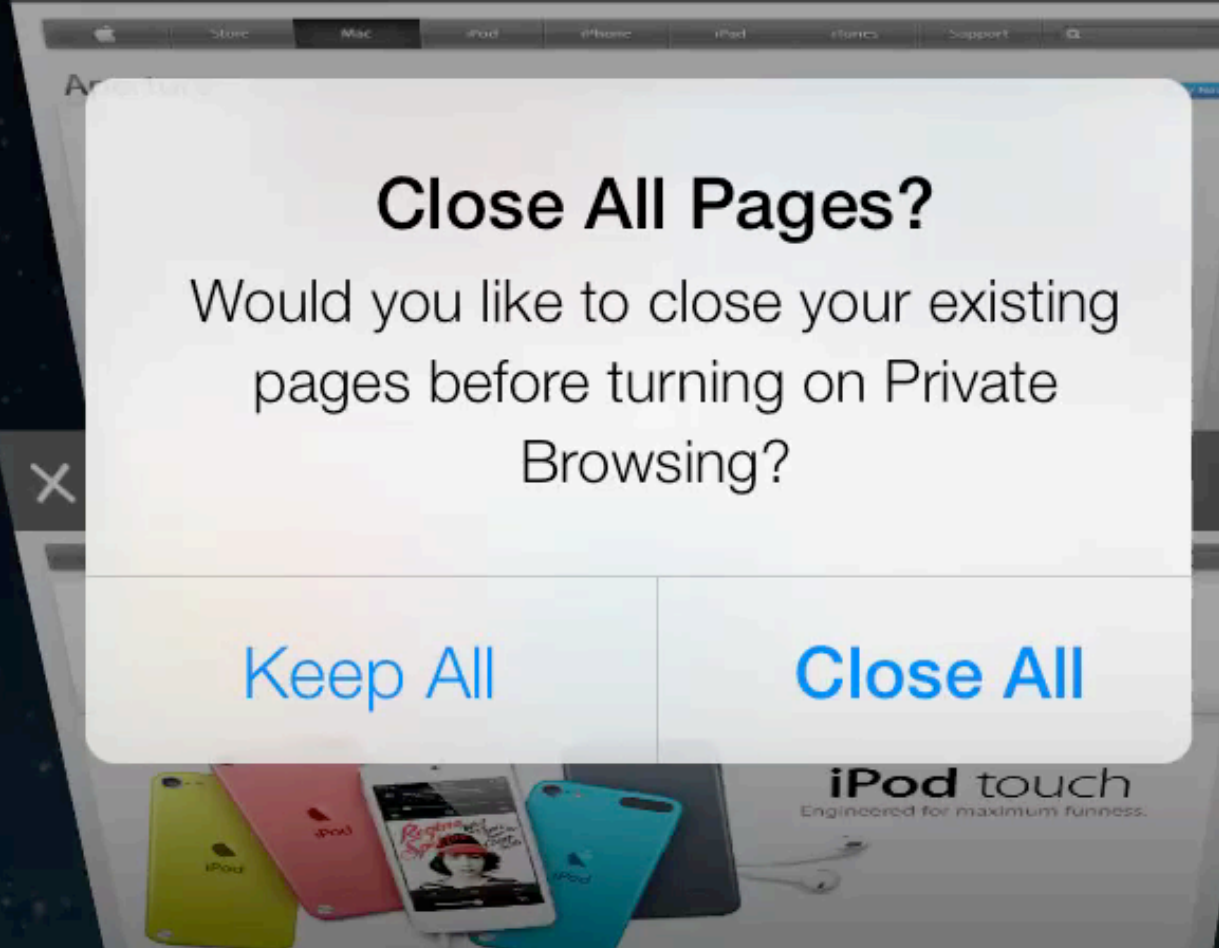
100%



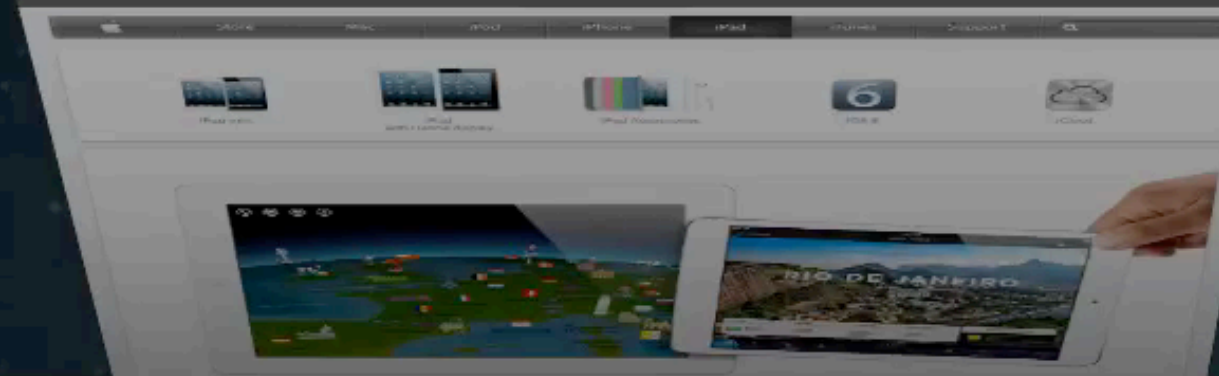
Apple



Apple - Aperture - Pro performance with iPhoto...



Apple - iPad



Private



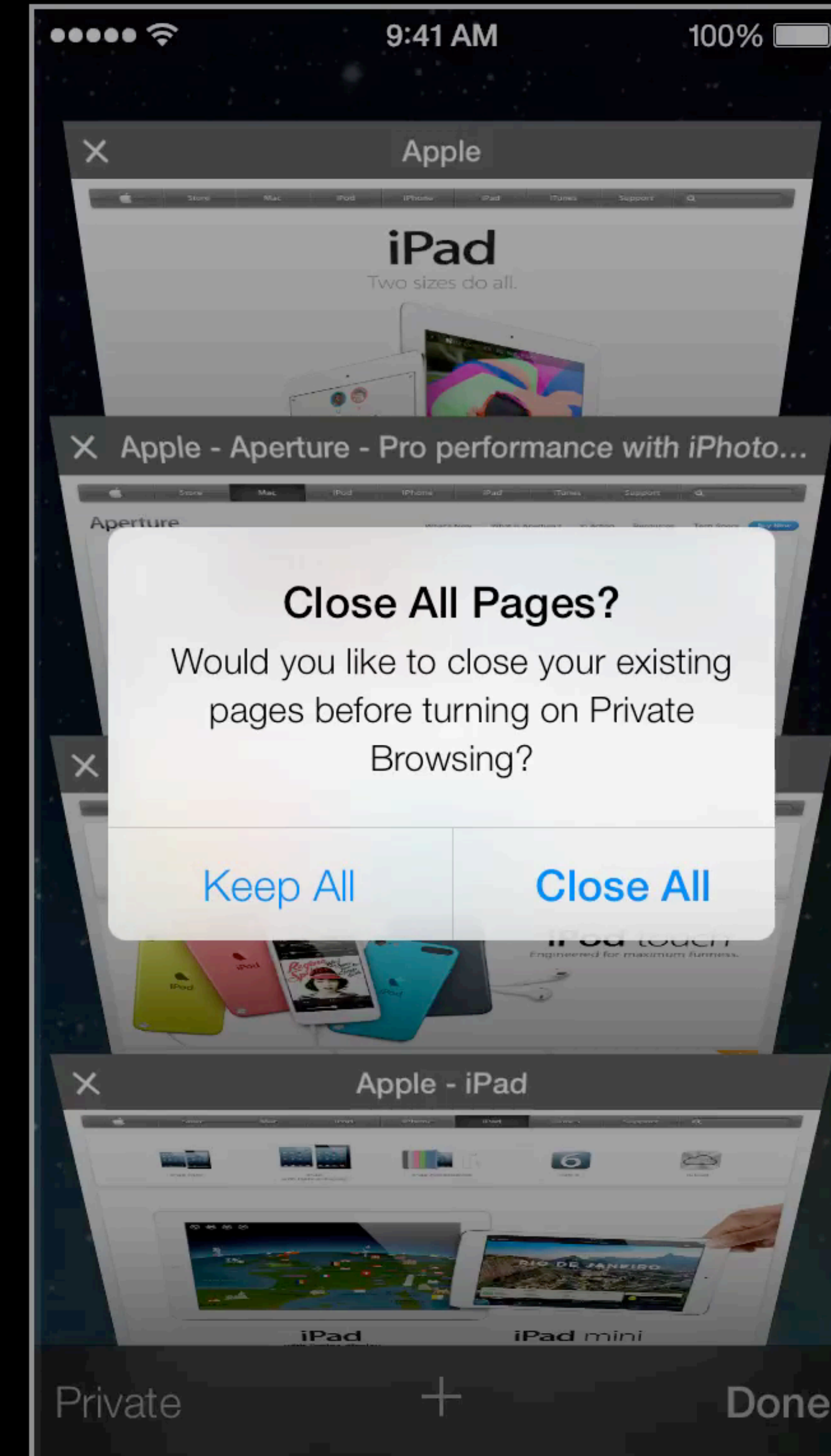
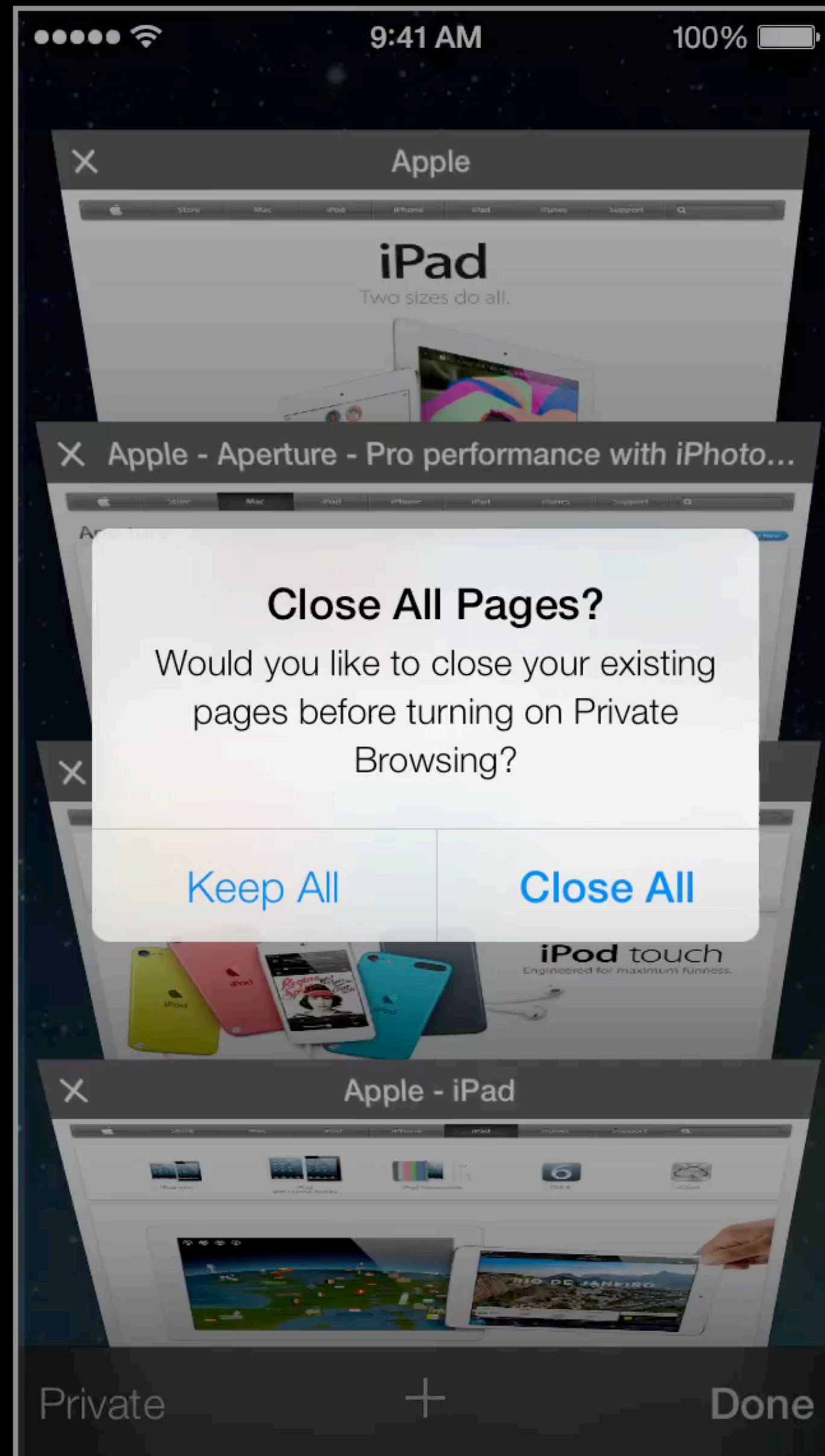
Done

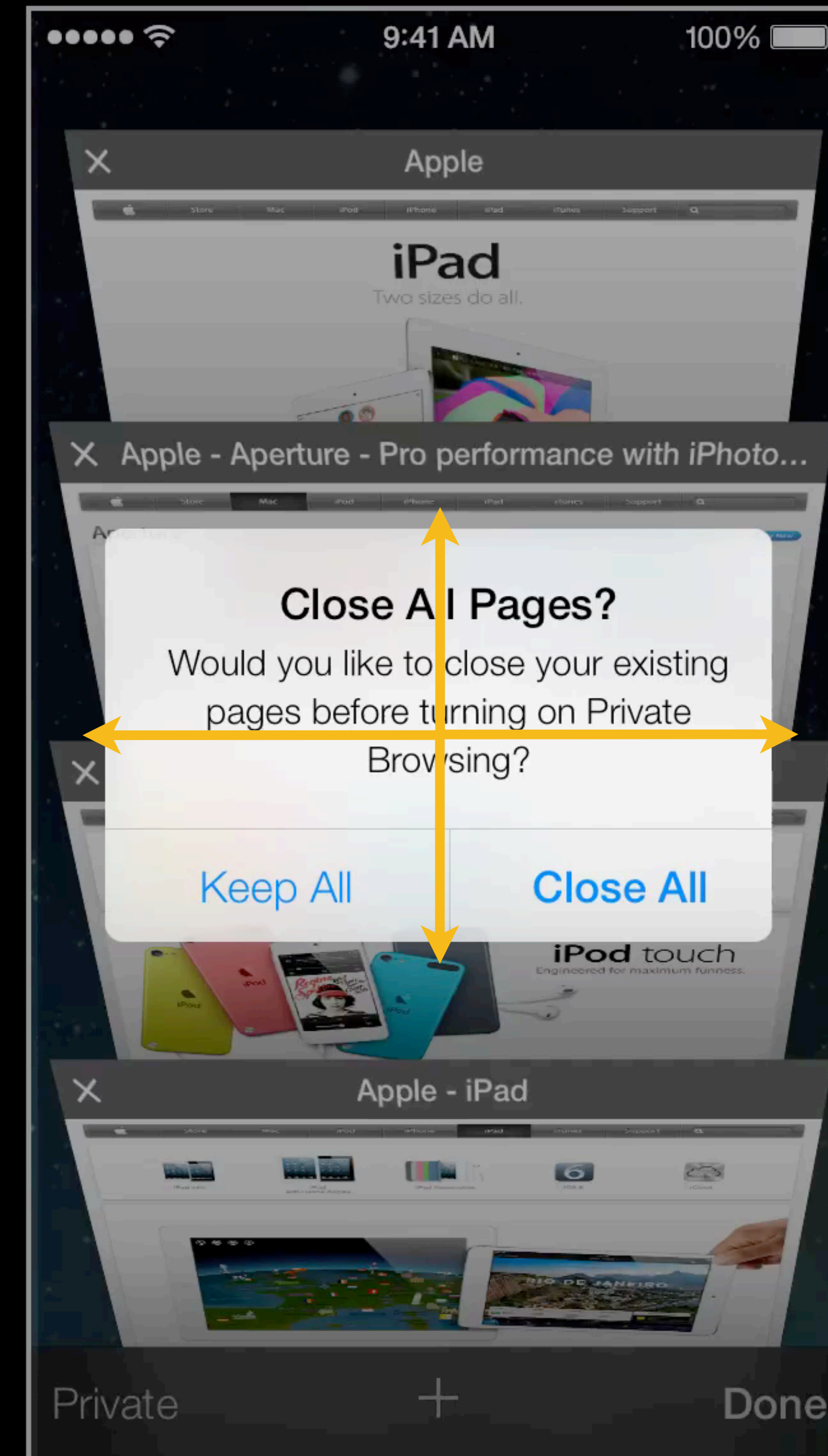
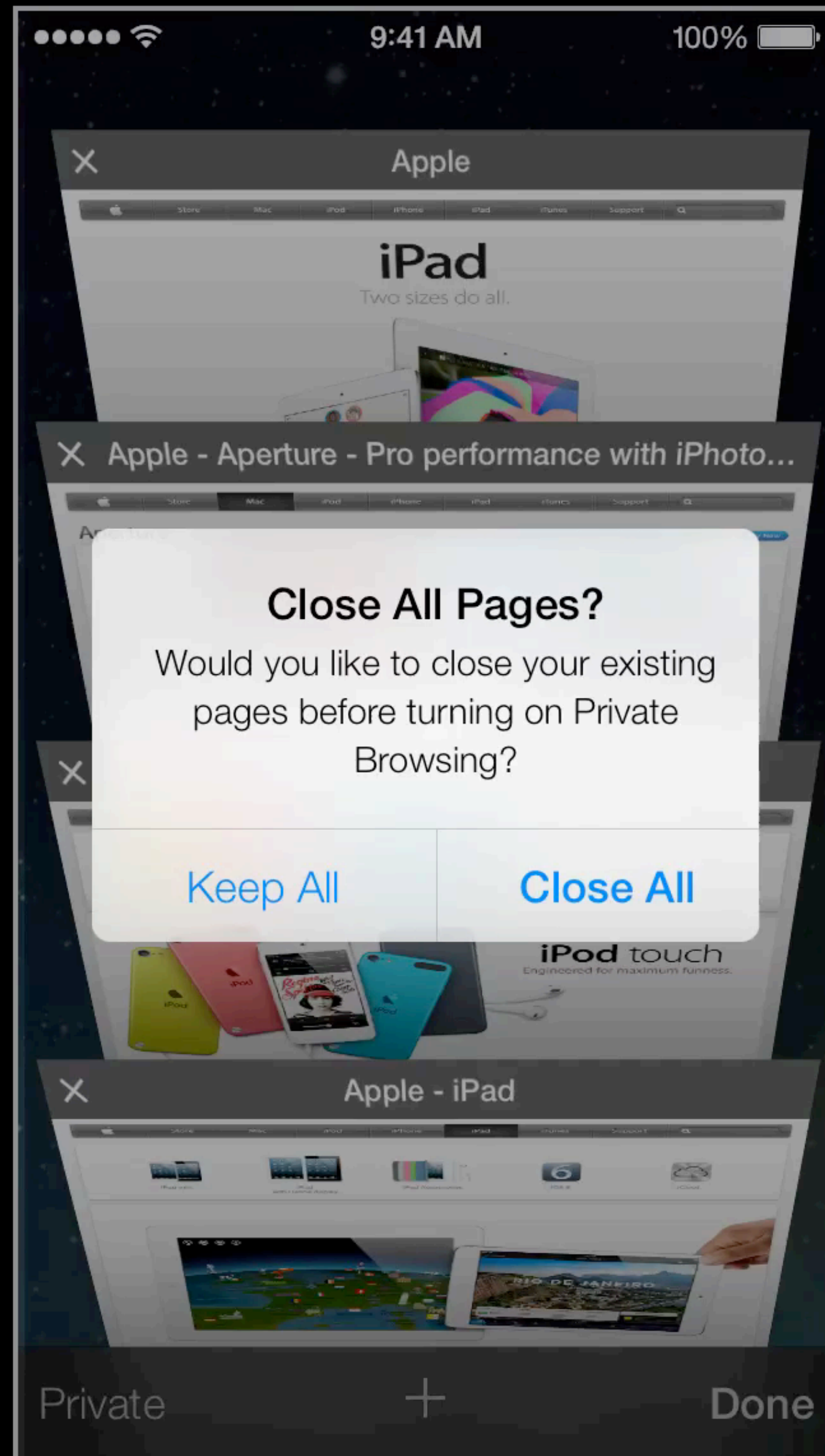
Close All Pages?

Would you like to close your existing pages before turning on Private Browsing?

Keep All

Close All





UIMotionEffect

- Abstract class
- Easily subclassable
- Receives accelerometer updates
- UIInterpolatingMotionEffect

```
UIInterpolatingMotionEffect *xAxis;  
xAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.x"  
              type:UIInterpolatingMotionEffectTypeTiltAlongHorizontalAxis];
```



```
UIInterpolatingMotionEffect *xAxis;  
xAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.x"  
            type:UIInterpolatingMotionEffectTypeTiltAlongHorizontalAxis];
```

```
xAxis.minimumRelativeValue = @-40;  
xAxis.maximumRelativeValue = @40;
```

```
UIInterpolatingMotionEffect *xAxis;  
xAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.x"  
           type:UIInterpolatingMotionEffectTypeTiltAlongHorizontalAxis];
```

```
xAxis.minimumRelativeValue = @-40;  
xAxis.maximumRelativeValue = @40;
```

```
UIInterpolatingMotionEffect *yAxis;  
yAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.y"  
           type:UIInterpolatingMotionEffectTypeTiltAlongVerticalAxis];
```



```
UIInterpolatingMotionEffect *xAxis;  
xAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.x"  
           type:UIInterpolatingMotionEffectTypeTiltAlongHorizontalAxis];
```

```
xAxis.minimumRelativeValue = @-40;  
xAxis.maximumRelativeValue = @40;
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```
UIInterpolatingMotionEffect *yAxis;  
yAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.y"  
           type:UIInterpolatingMotionEffectTypeTiltAlongVerticalAxis];
```

```
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yAxis.maximumRelativeValue = @40;
```

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UIInterpolatingMotionEffect *xAxis;  
xAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.x"  
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```
UIInterpolatingMotionEffect *yAxis;  
yAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.y"  
           type:UIInterpolatingMotionEffectTypeTiltAlongVerticalAxis];
```

```
yAxis.minimumRelativeValue = @-40;  
yAxis.maximumRelativeValue = @40;
```

```
UIMotionEffectGroup *group = [[UIMotionEffectGroup alloc] init];  
group.motionEffects = @[xAxis, yAxis];
```



```
UIInterpolatingMotionEffect *xAxis;  
xAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.x"  
           type:UIInterpolatingMotionEffectTypeTiltAlongHorizontalAxis];
```

```
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UIInterpolatingMotionEffect *yAxis;  
yAxis = [[UIInterpolatingMotionEffect alloc] initWithKeyPath:@"center.y"  
           type:UIInterpolatingMotionEffectTypeTiltAlongVerticalAxis];
```

```
yAxis.minimumRelativeValue = @-40;  
yAxis.maximumRelativeValue = @40;
```

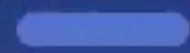
```
UIMotionEffectGroup *group = [[UIMotionEffectGroup alloc] init];  
group.motionEffects = @[xAxis, yAxis];
```

```
[view addMotionEffect:group];
```

Dynamics

Dynamics

- Realistic
- Physics-based engine
- Collisions, springs, gravity, attachments
- Dynamics exists to enhance



100% 

9:41

Monday, September 30

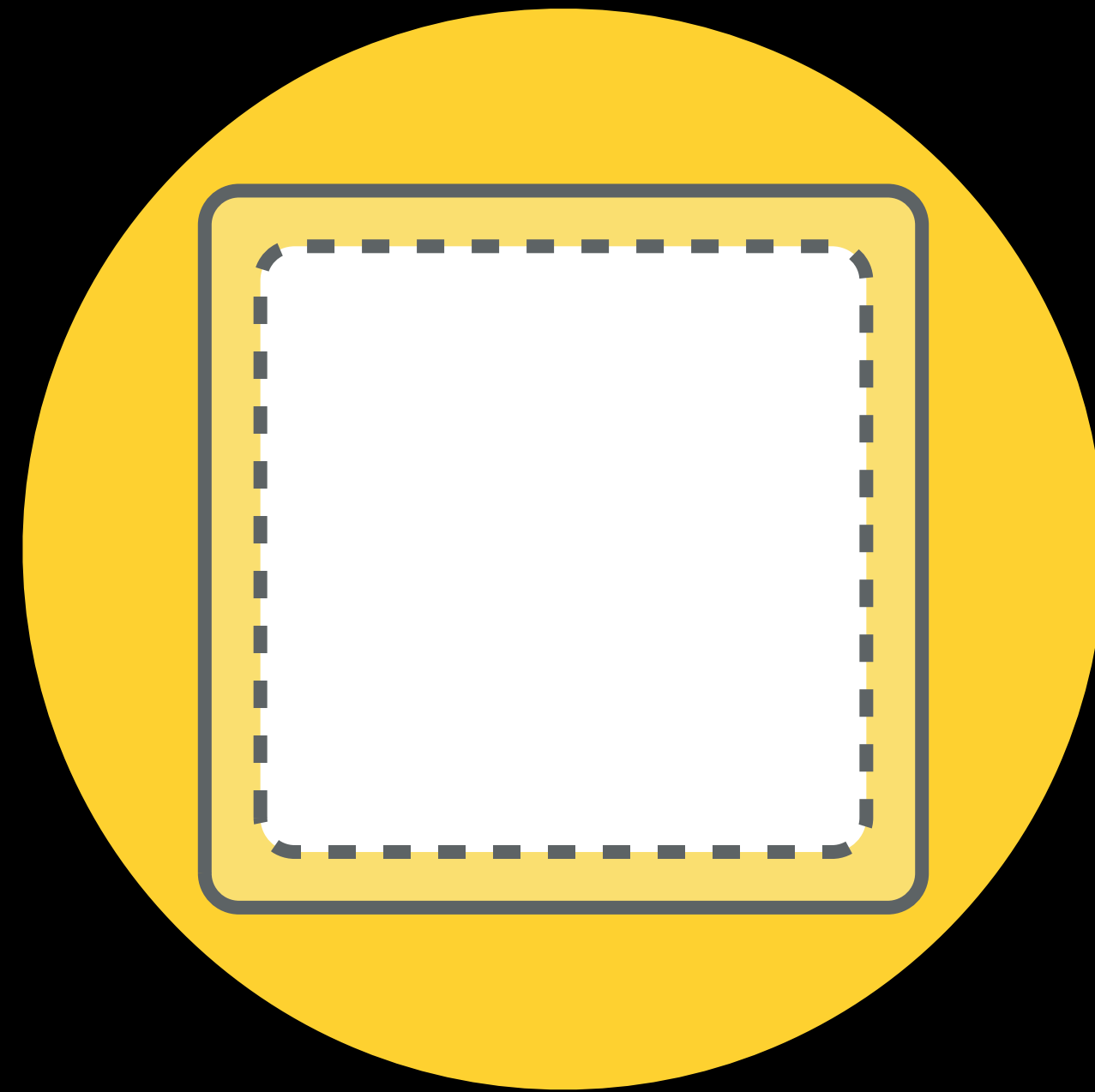
> slide to unlock



Dynamics

- Realistic
- Physics-based engine
- Collisions, springs, gravity, attachments
- Dynamics exists to enhance

Getting Started with UIKit Dynamics	WWDC 2013	
Advanced Techniques with UIKit Dynamics	WWDC 2013	
Exploring Scroll Views on iOS 7	WWDC 2013	



Custom Transitions

Motion

- Motion effects are subtle
- Dynamics add realism
- Custom transitions move to new areas of app
 - Engaging and realistic
 - More than just screen-to-screen

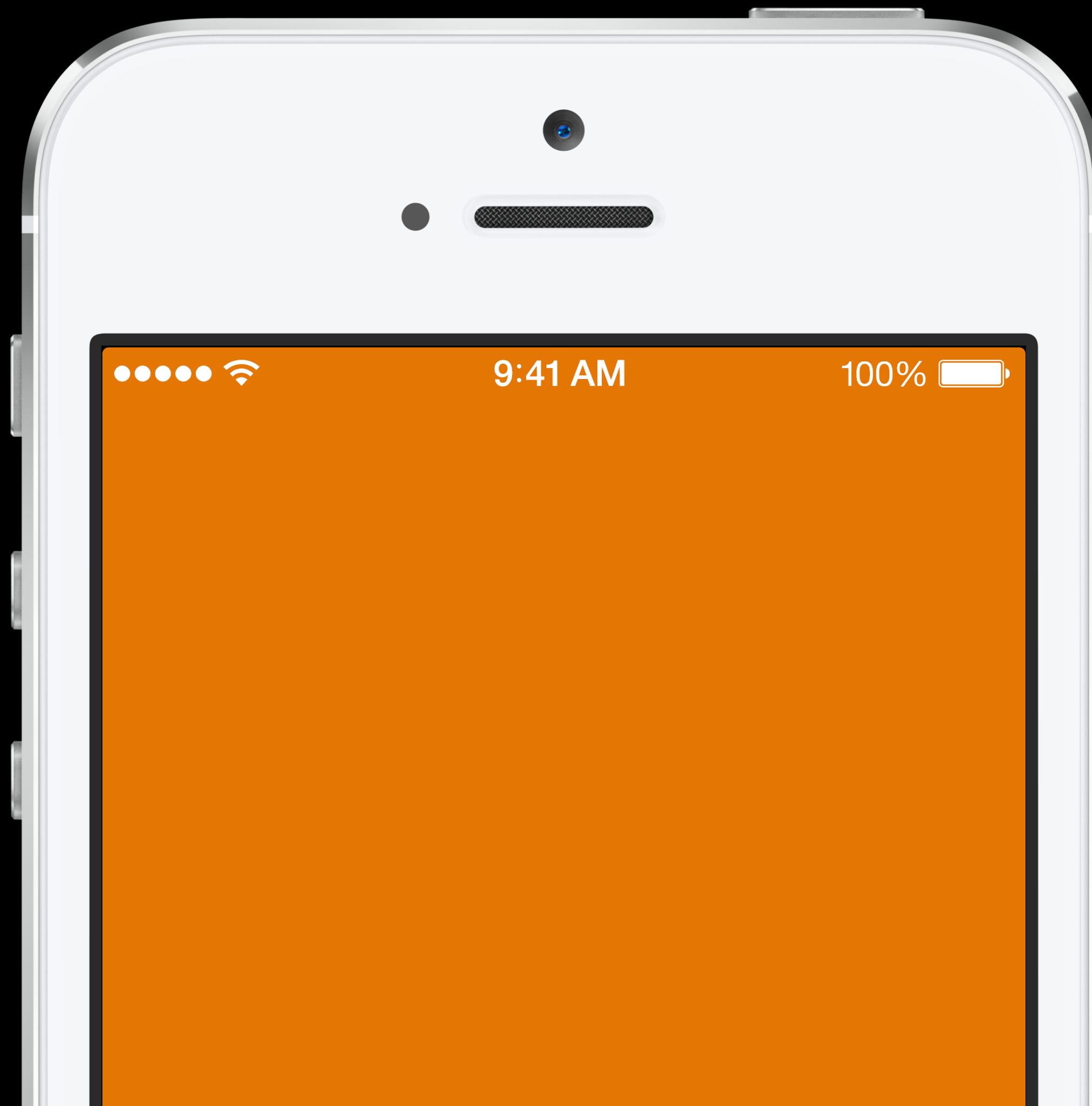
Custom Transitions

API Overview

- Objects defined by protocols
 - *Extremely* flexible
- Transitions happen in a sandbox
- You must notify when complete

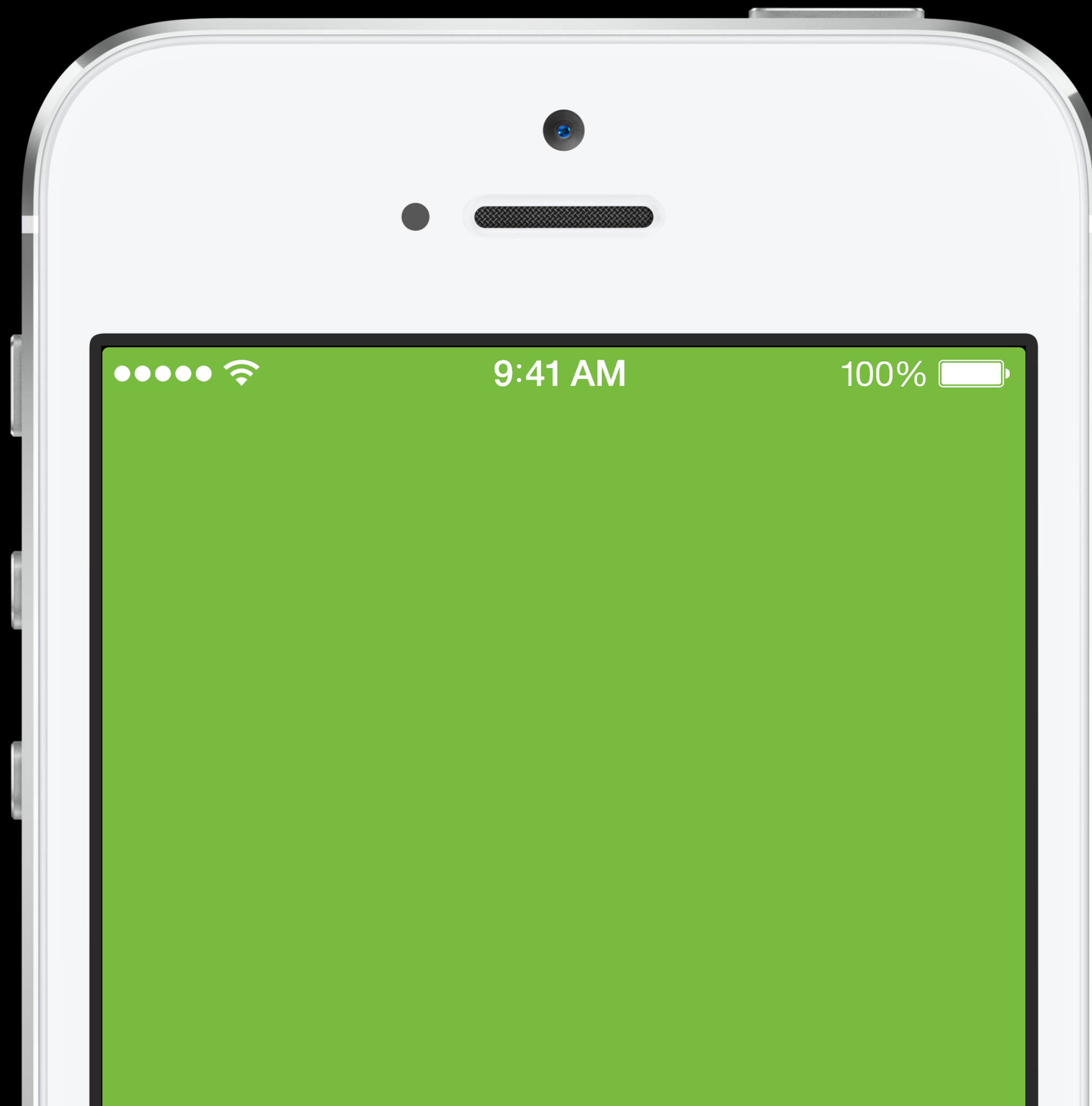
Custom Transition

Example



Custom Transition

Example



Custom Transitions

Transitioning Delegate

- View Controllers ask transitioning delegate how to transition
- Provides objects to control transition timing
- Differentiates presentation from dismissal

Custom Transitions

Animated Transitioning Object

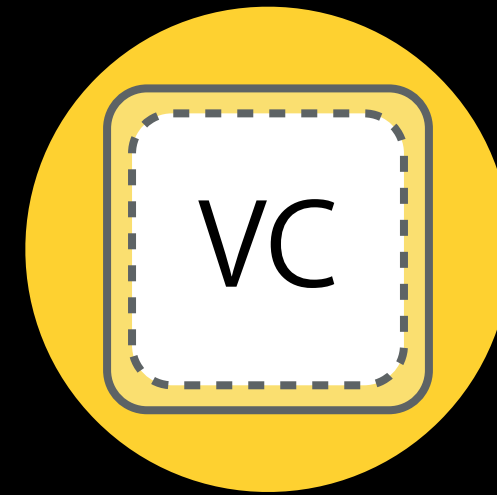
- Defines overall transition duration
- Performs the transition animation
- Reports when transition is totally complete

Custom Transitions

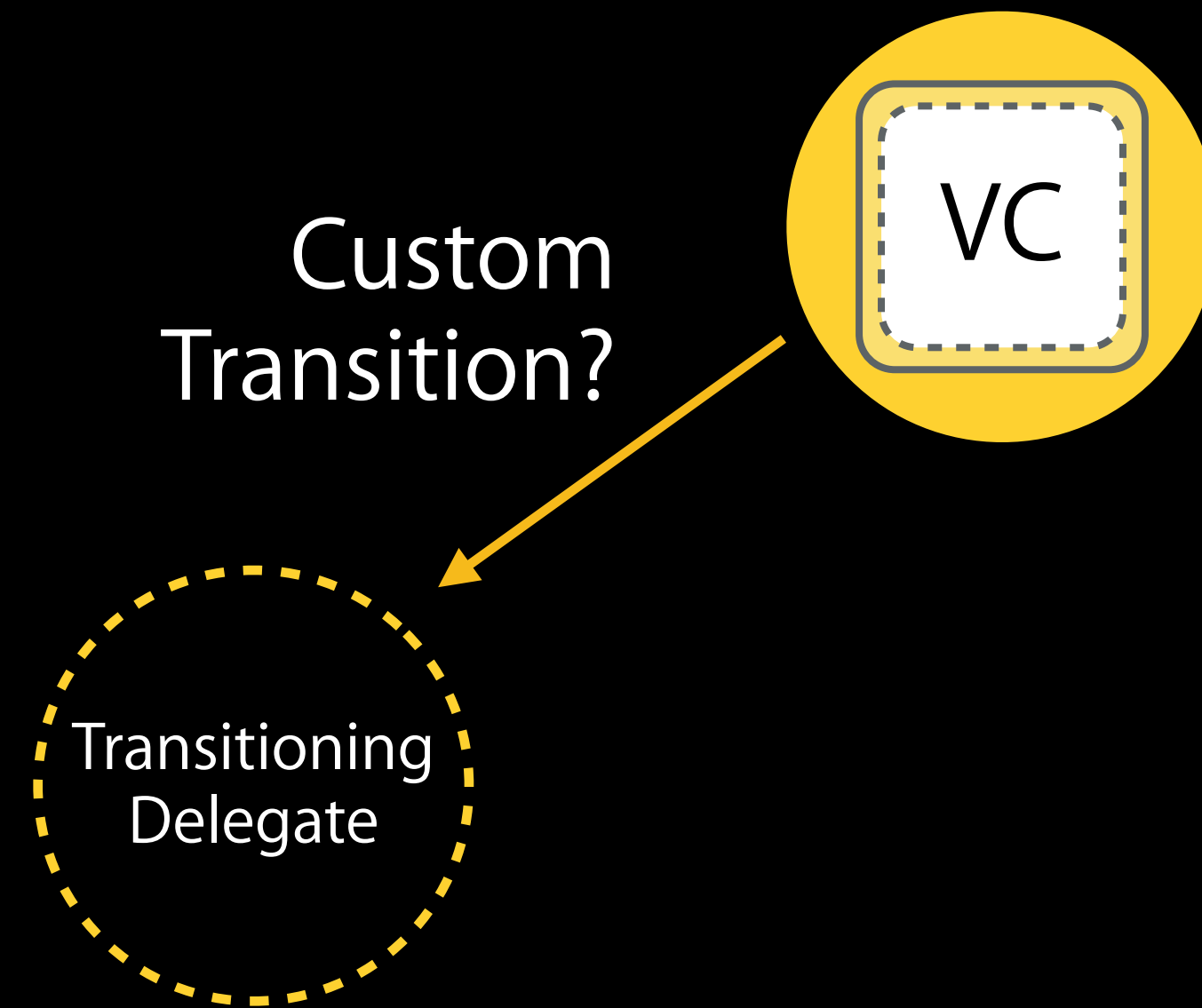
Transition Context

- System-provided object
- Provides transition metadata
- Use to indicate transition has completely ended

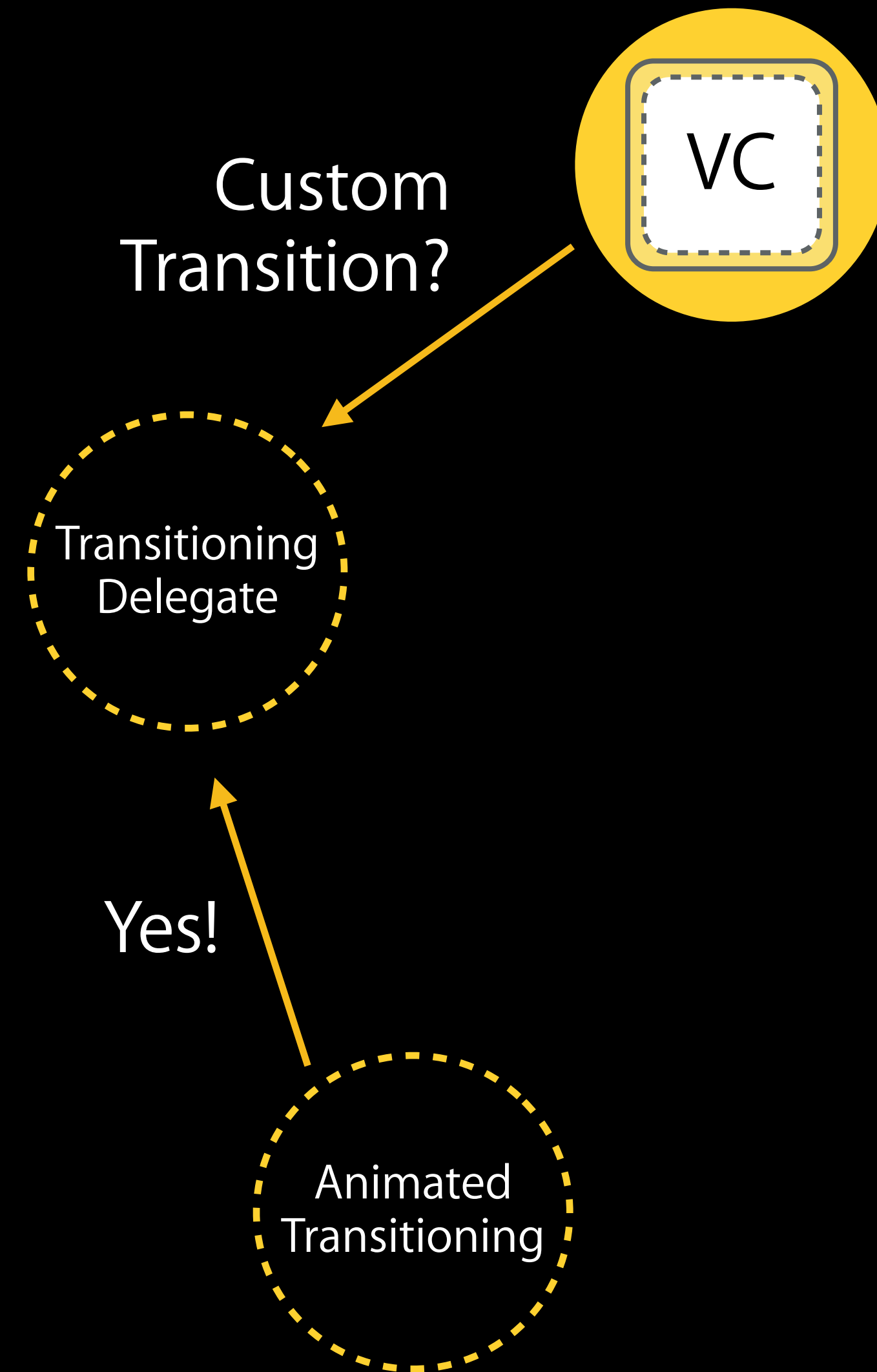
Lifetime of a Custom Transition



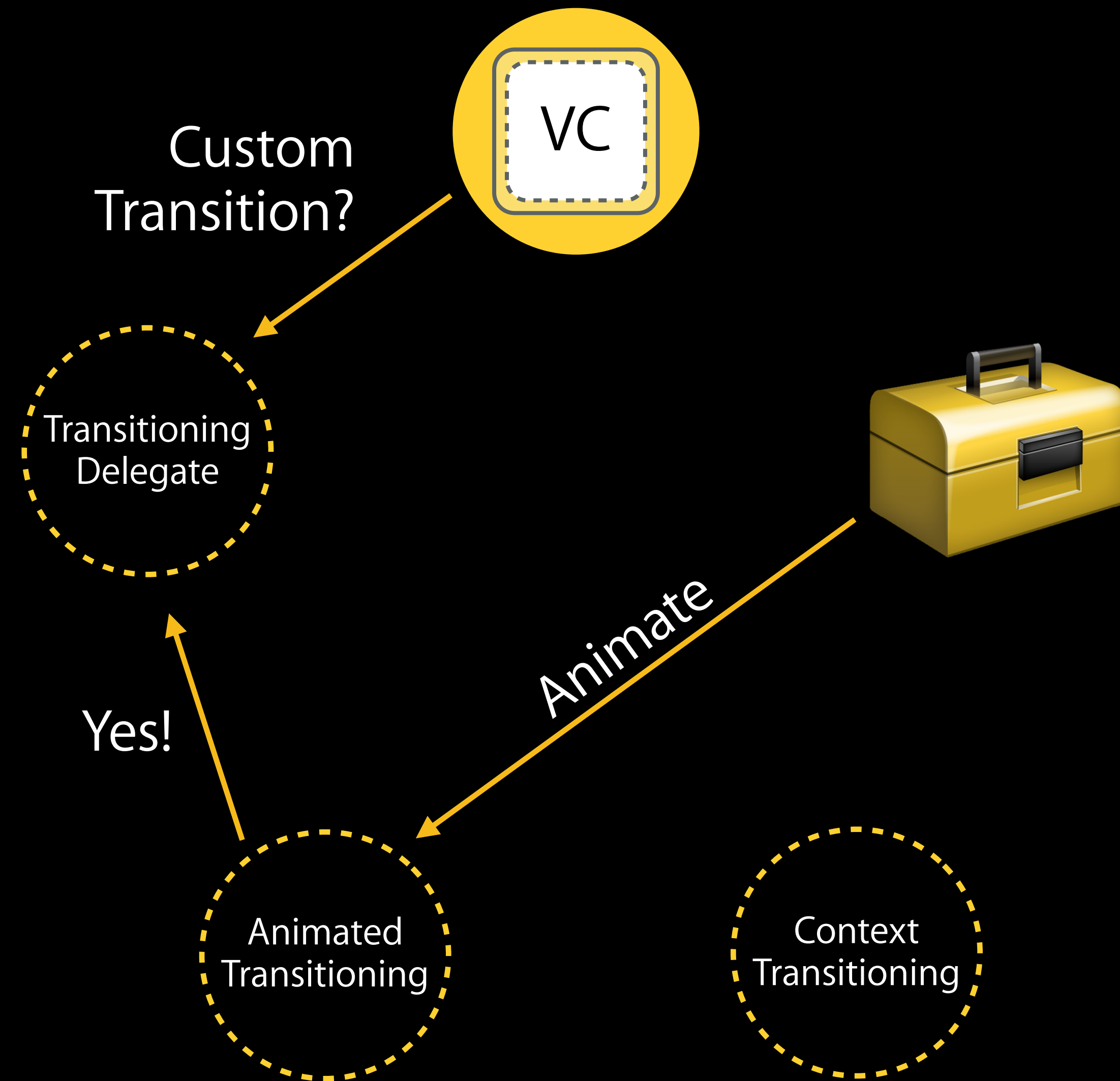
Lifetime of a Custom Transition



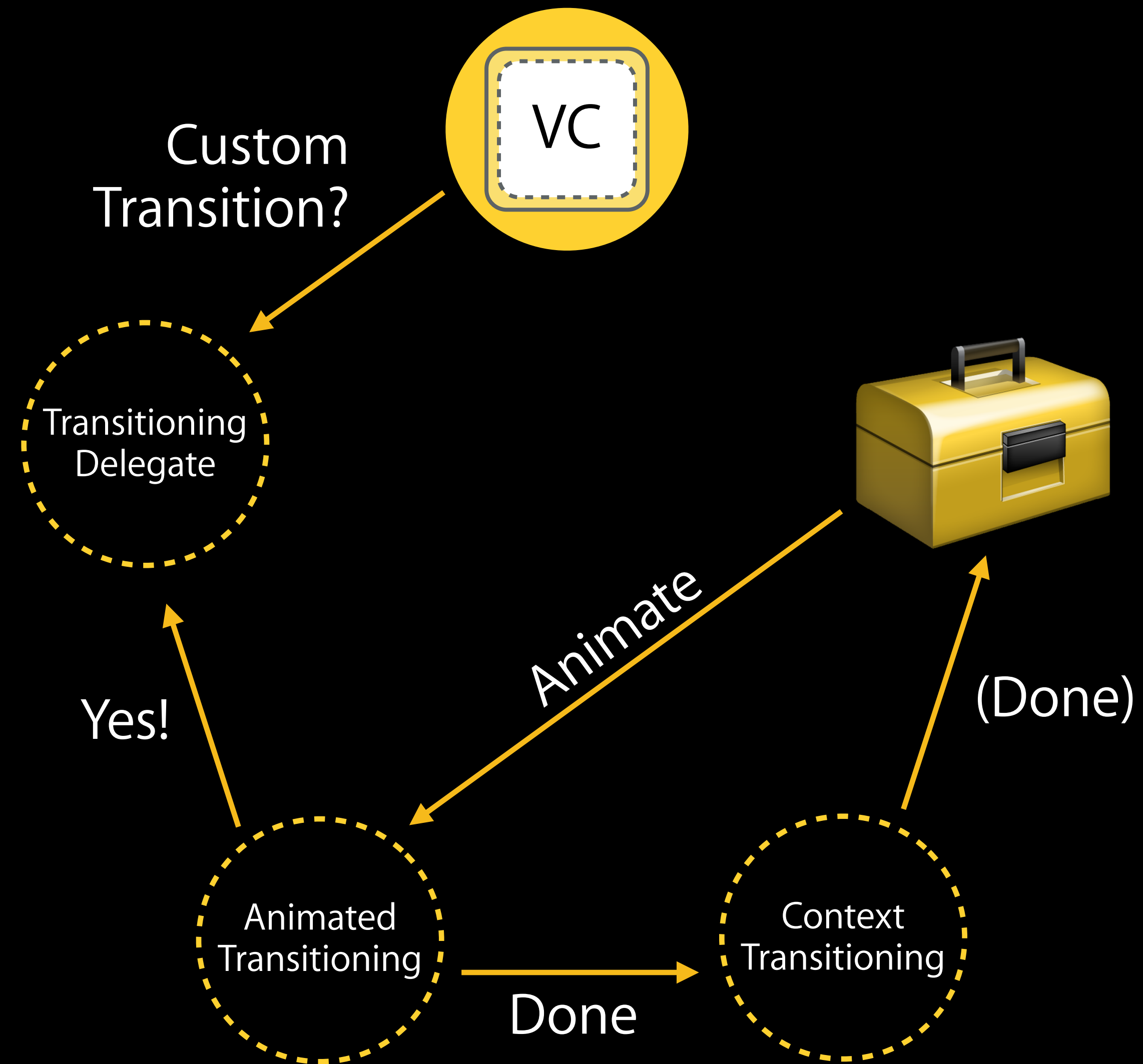
Lifetime of a Custom Transition



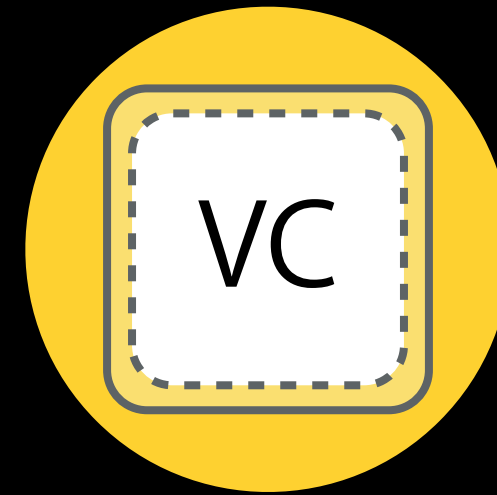
Lifetime of a Custom Transition



Lifetime of a Custom Transition



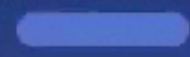
Lifetime of a Custom Transition



Interactive Transitions

High Level Overview

- Interaction happens *before* animation
- Defined by methods on <TransitioningDelegate>



100% 

9:41

Monday, September 30

> slide to unlock



Custom Transitions

Interactive Transitioning Object

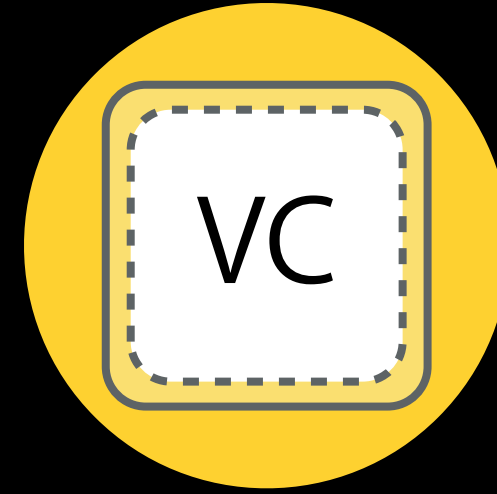
- Drives interactive transition
- Indicates cancellation or completion of interaction

Custom Transitions

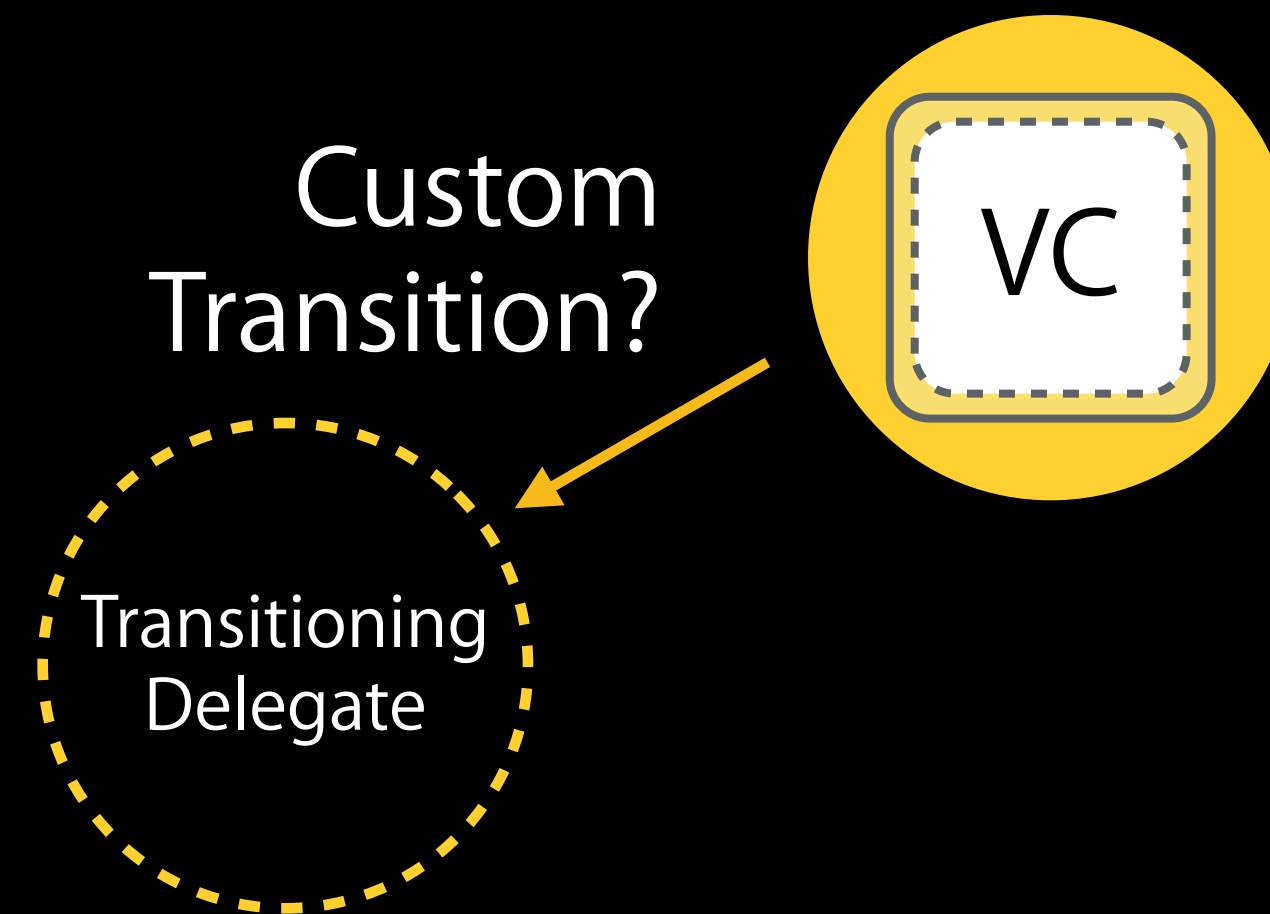
UIPercentDrivenInteractiveTransition

- Concrete implementation of <InteractiveTransitioning>
- Works with UIView animation API
- Easily subclassable

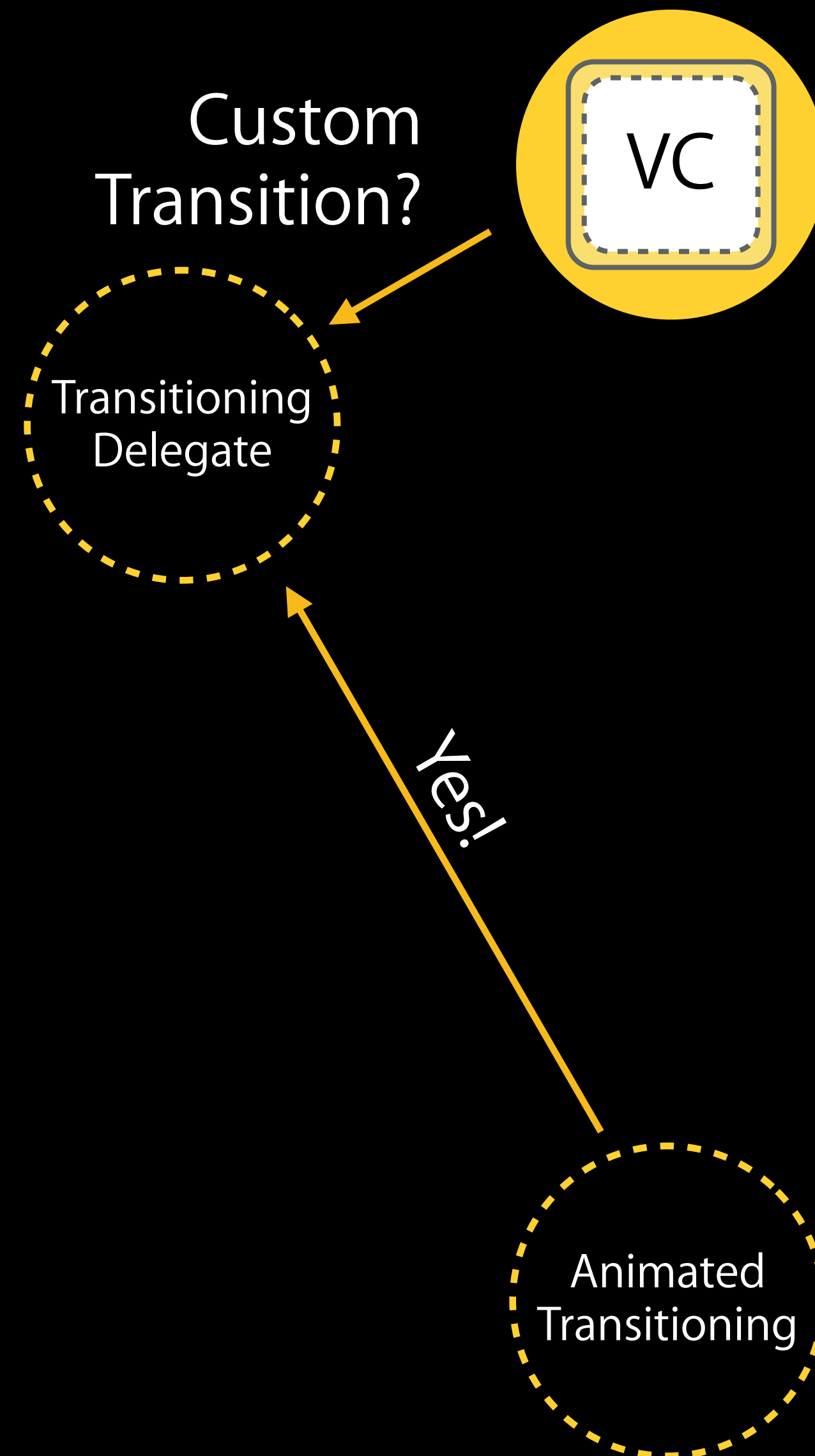
Lifetime of an Interactive Transition



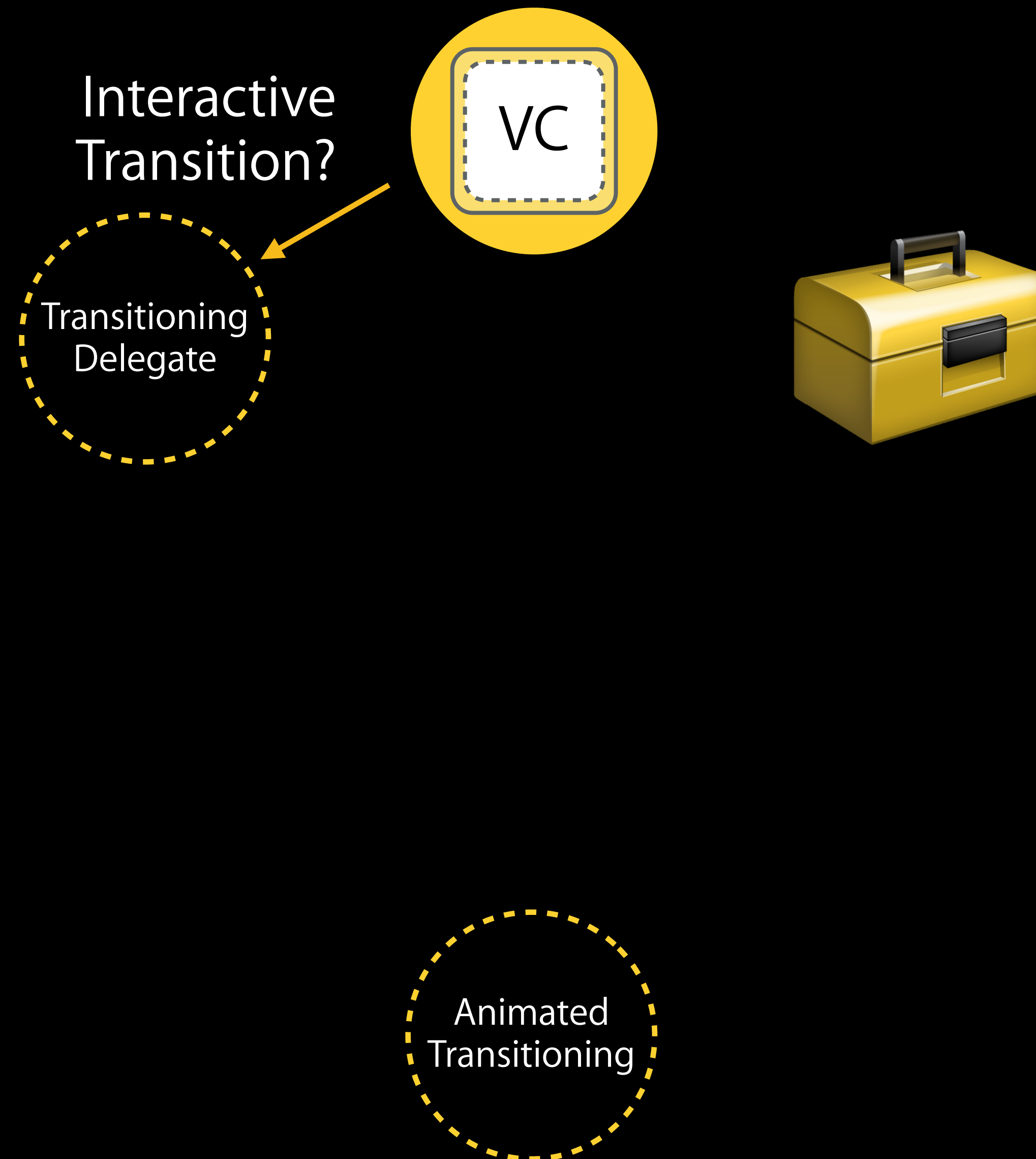
Lifetime of an Interactive Transition



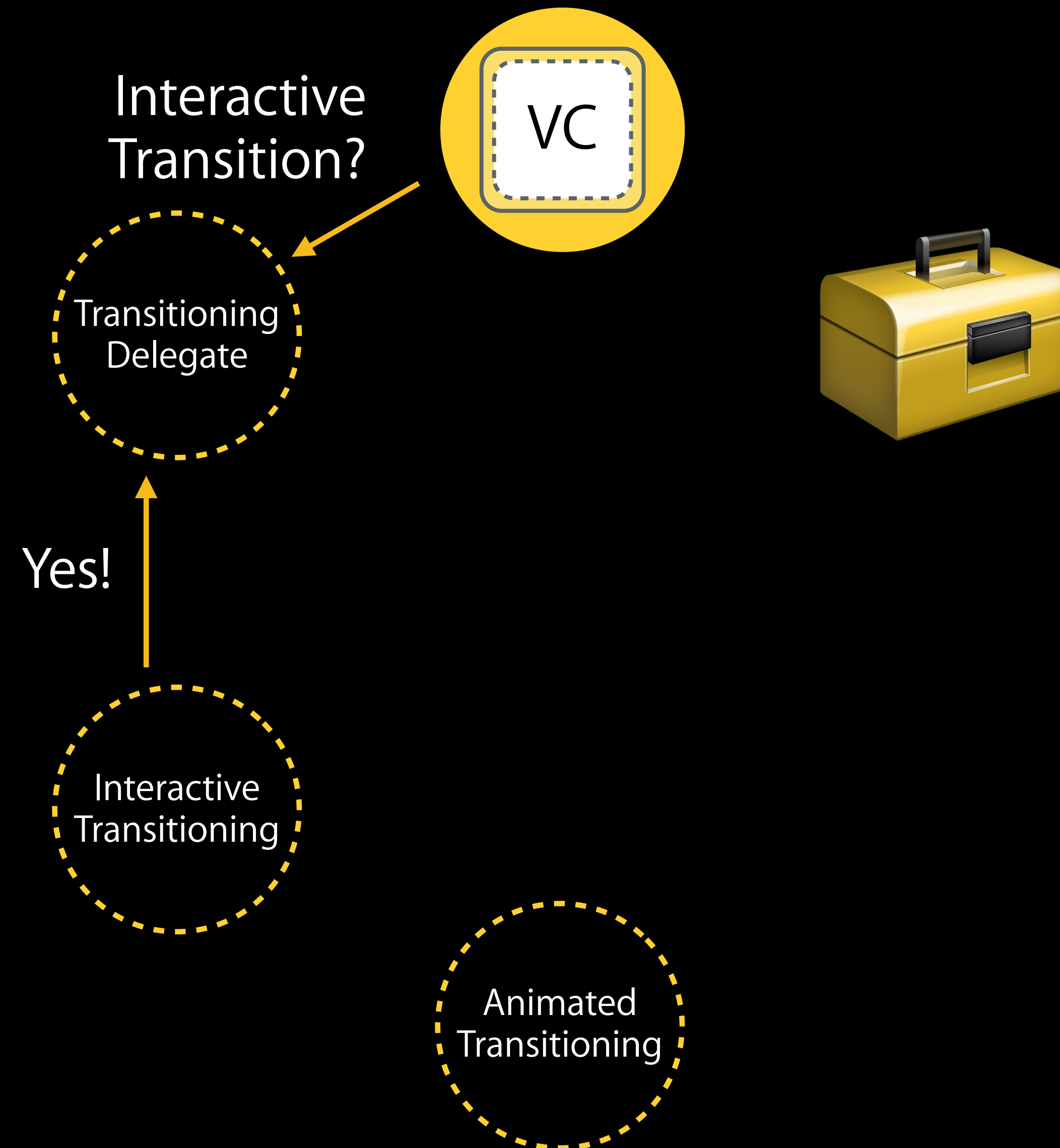
Lifetime of an Interactive Transition



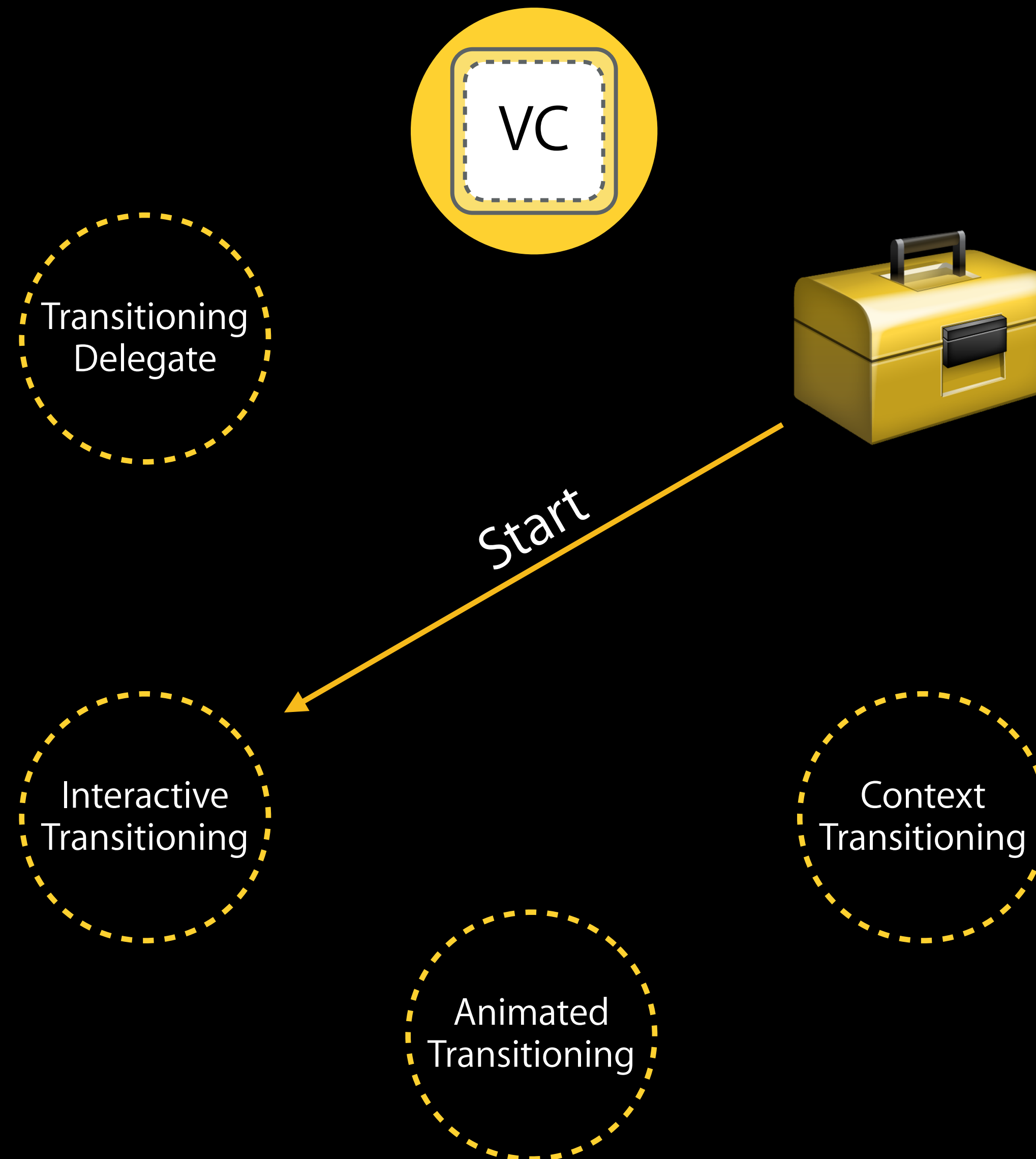
Lifetime of an Interactive Transition



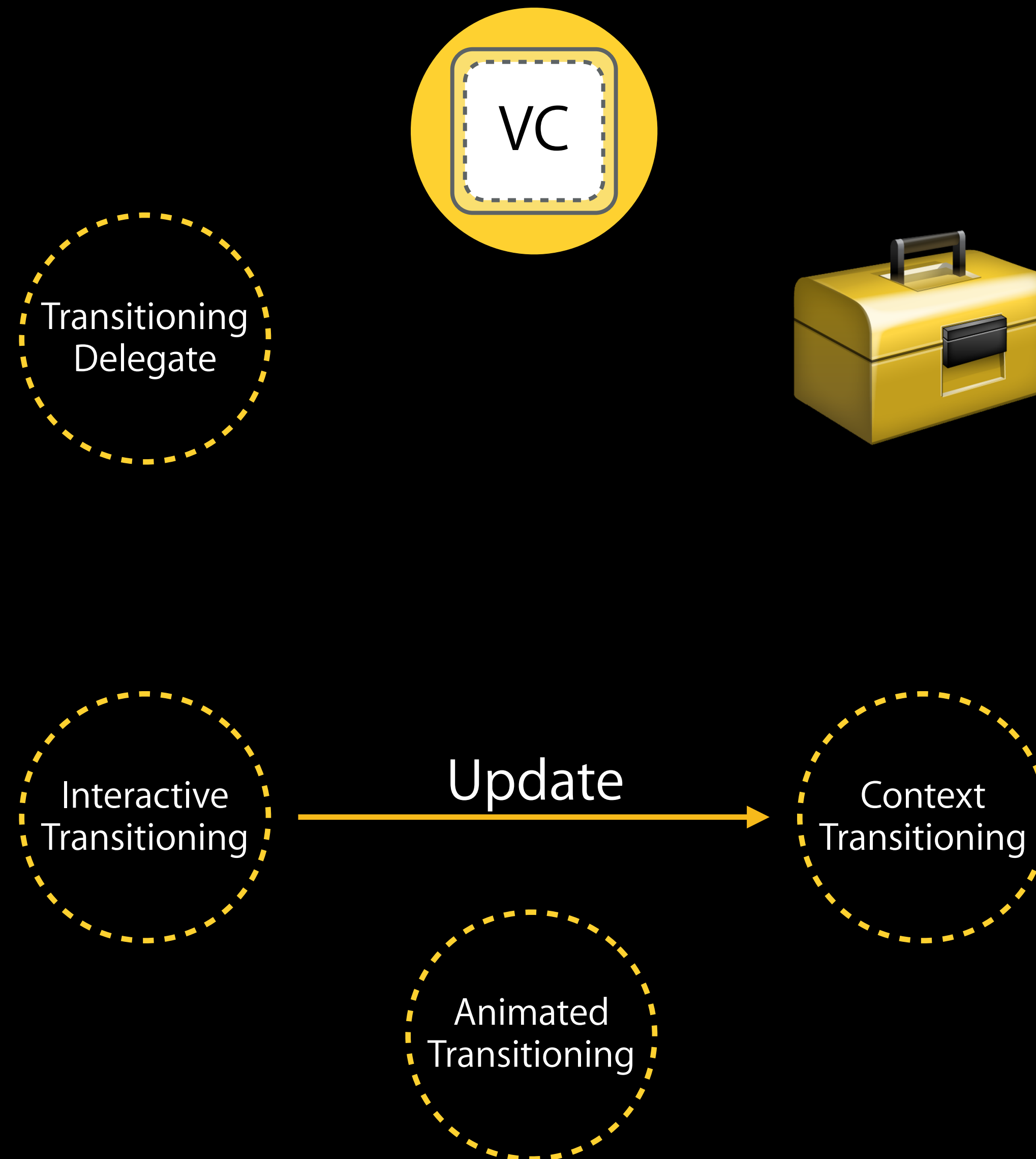
Lifetime of an Interactive Transition



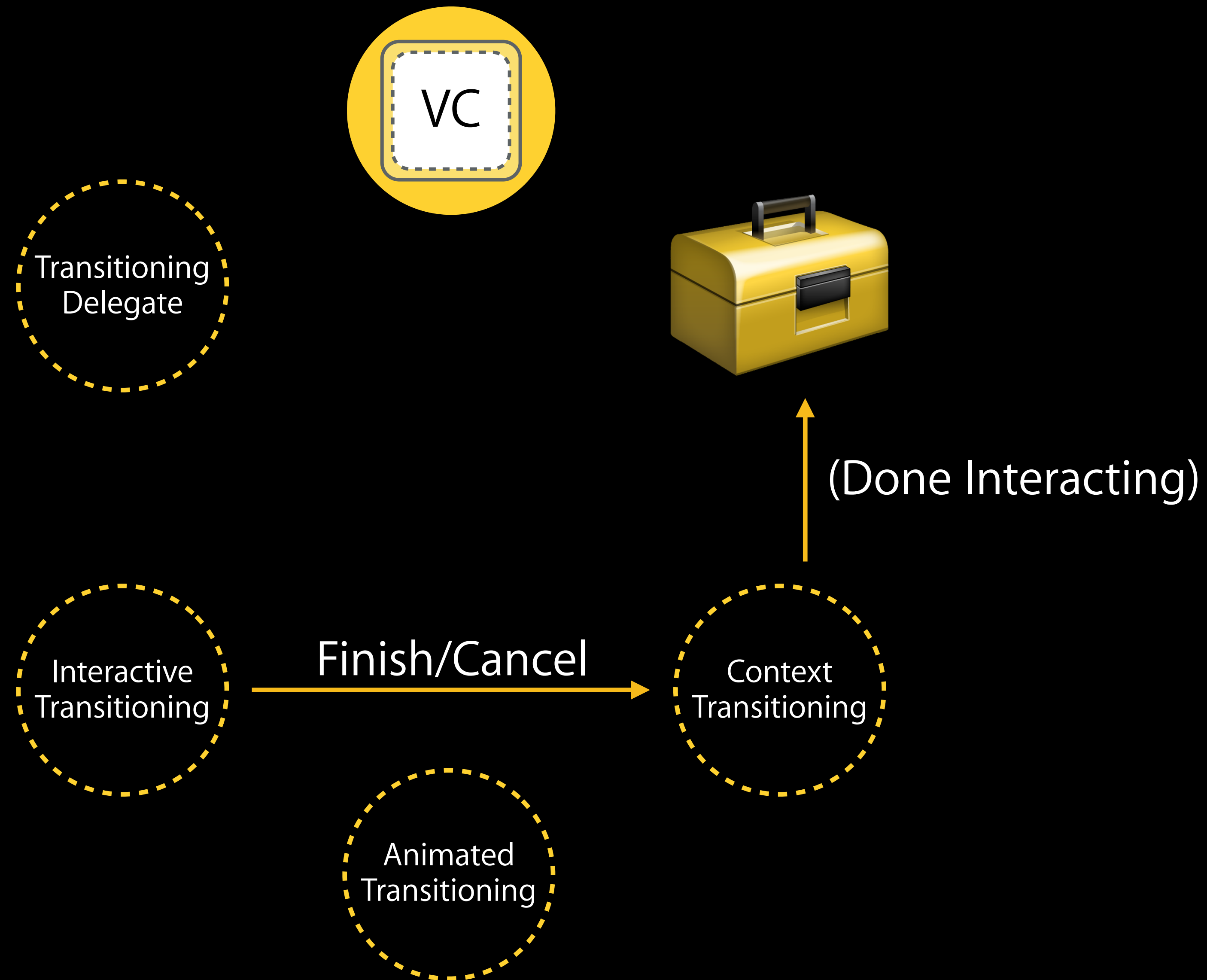
Lifetime of an Interactive Transition



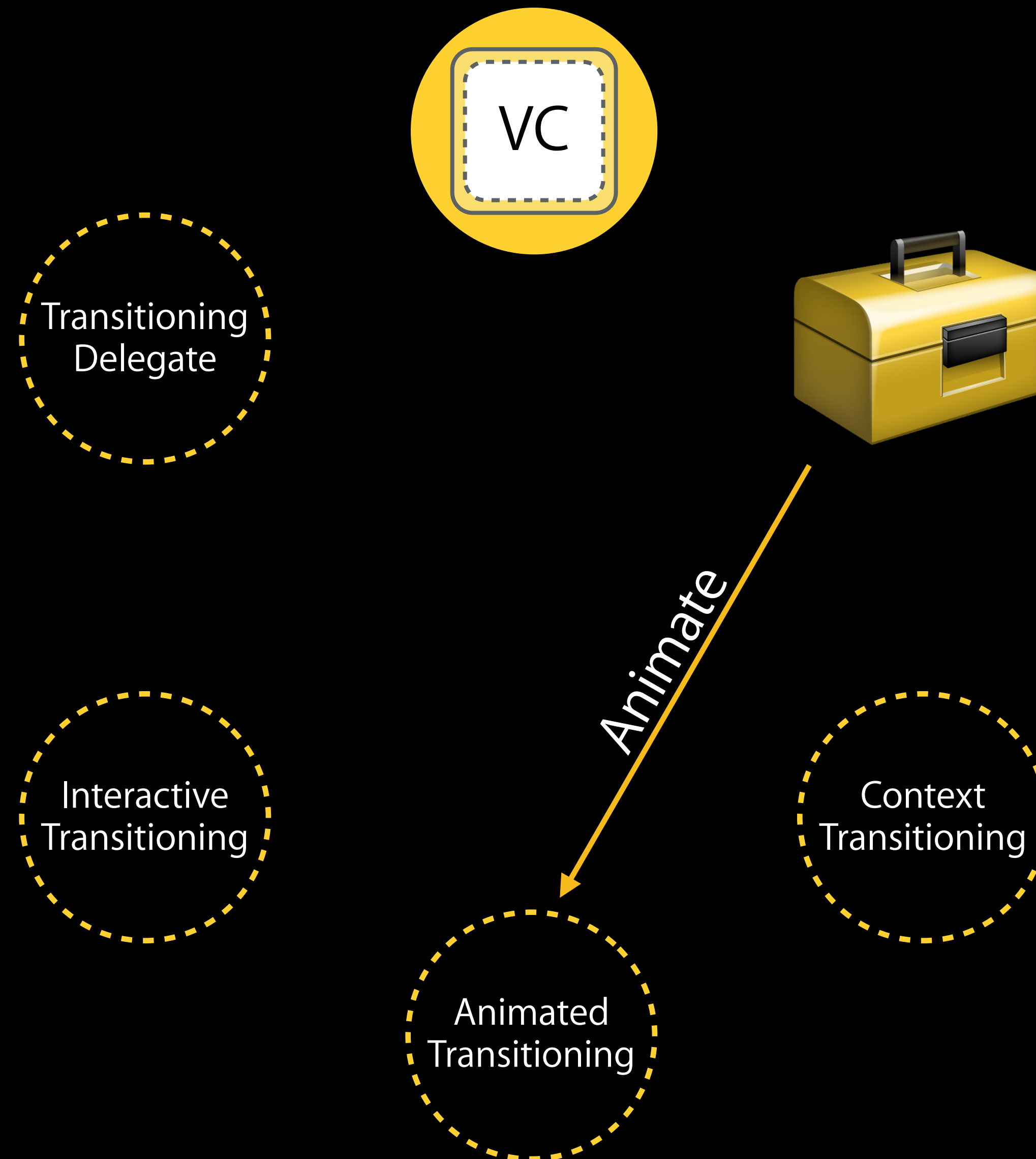
Lifetime of an Interactive Transition



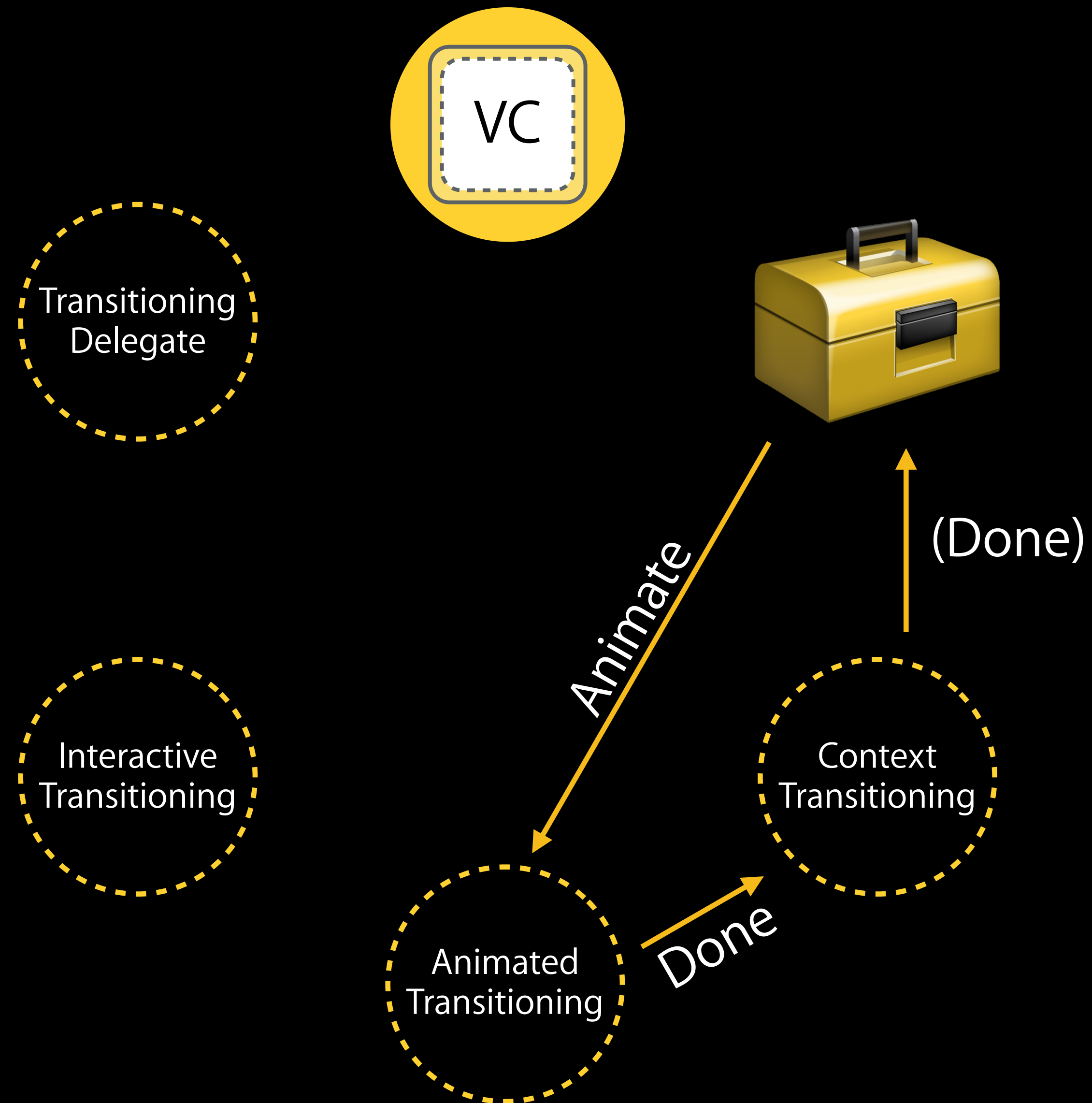
Lifetime of an Interactive Transition



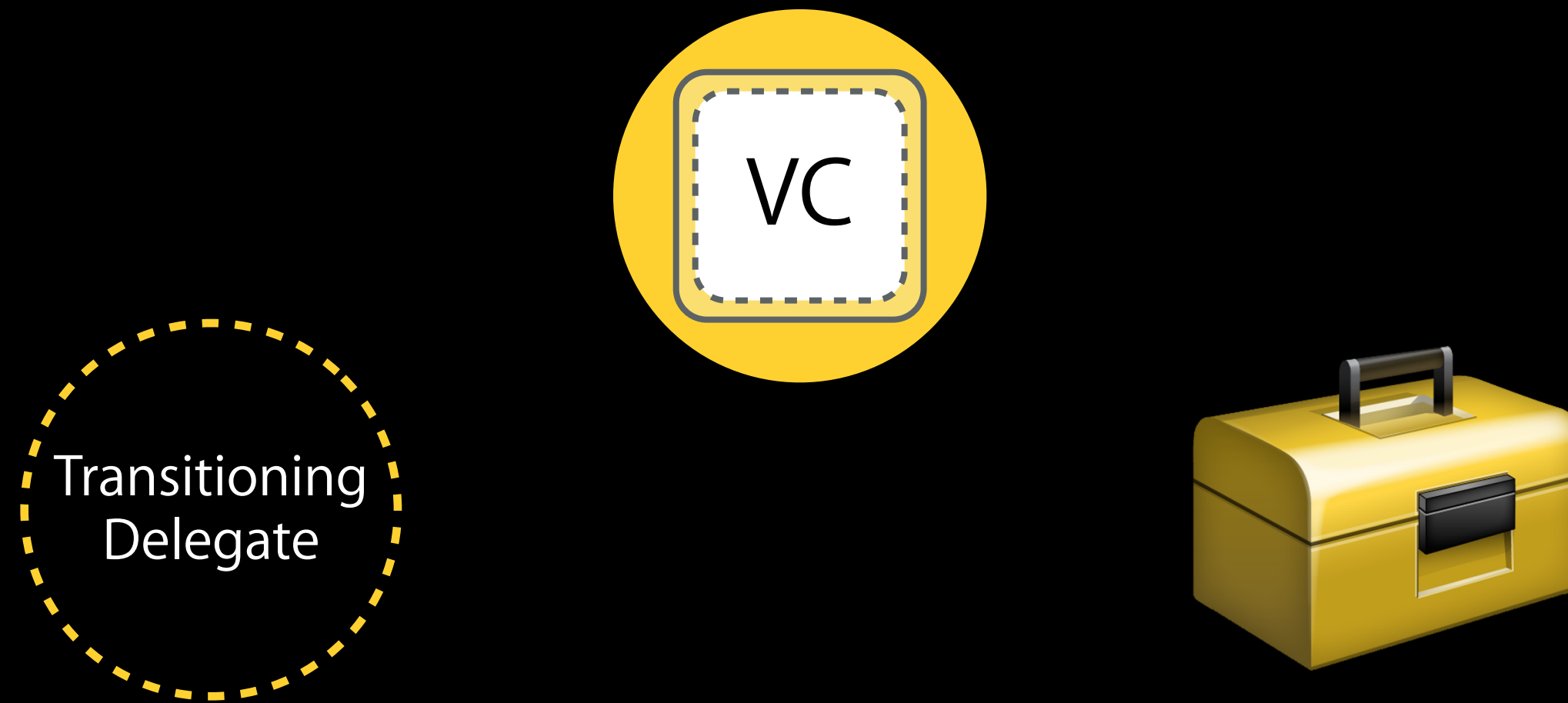
Lifetime of an Interactive Transition



Lifetime of an Interactive Transition



Lifetime of an Interactive Transition



Demo

Custom Interactive Transition

What about built-in transitions?

Coordinating Transitions

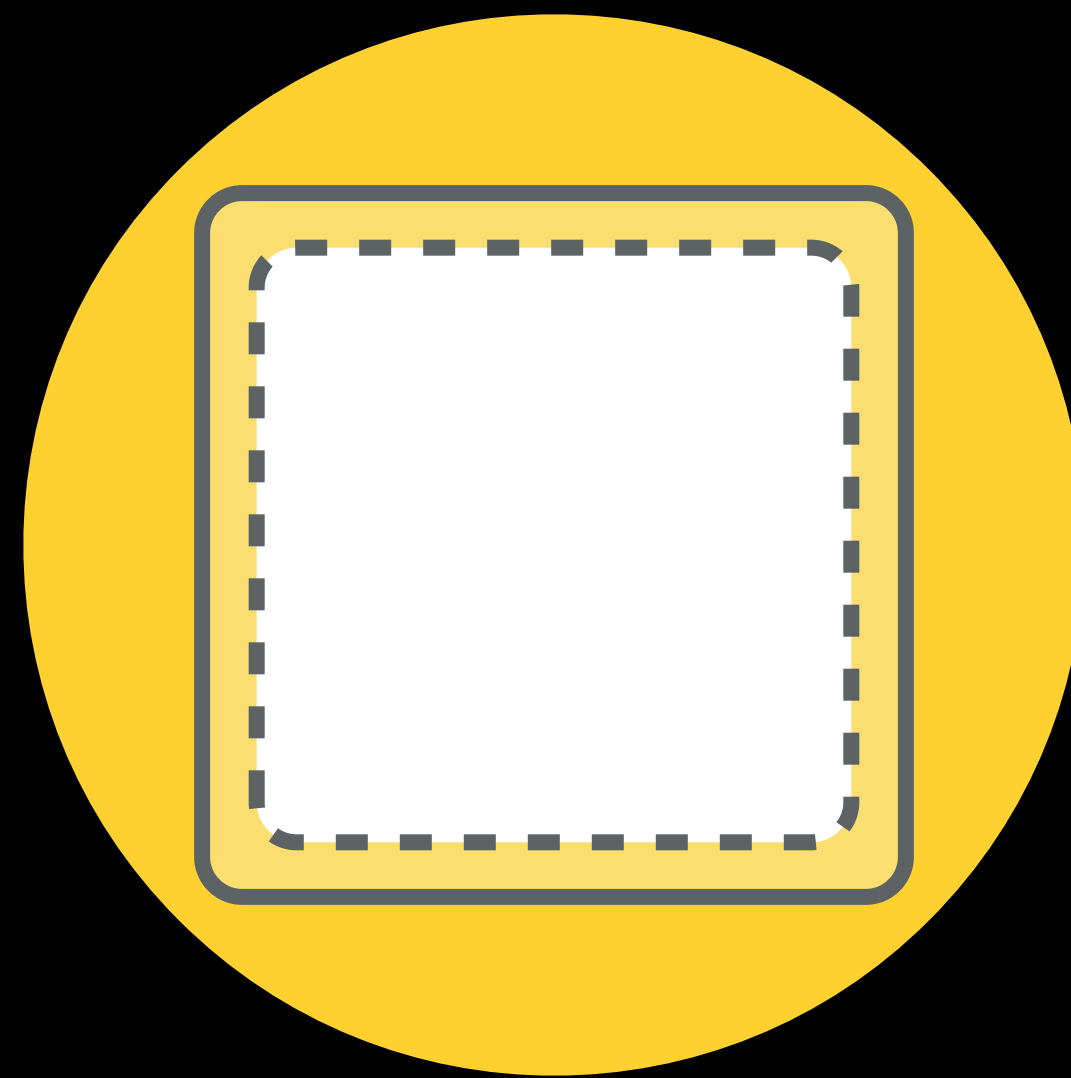
- All transitions have a Transition Coordinator
- Add extra animations
- Be notified of completion
- Get transition context and metadata



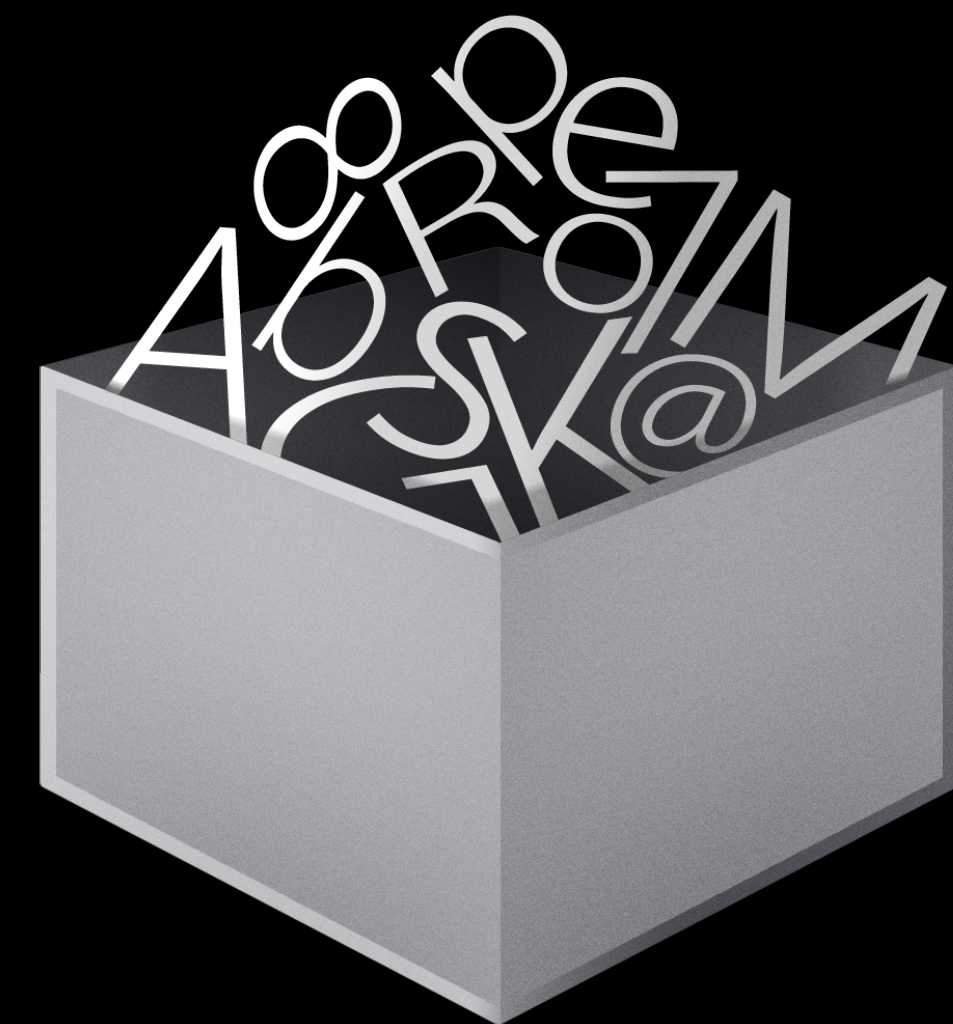
Motion



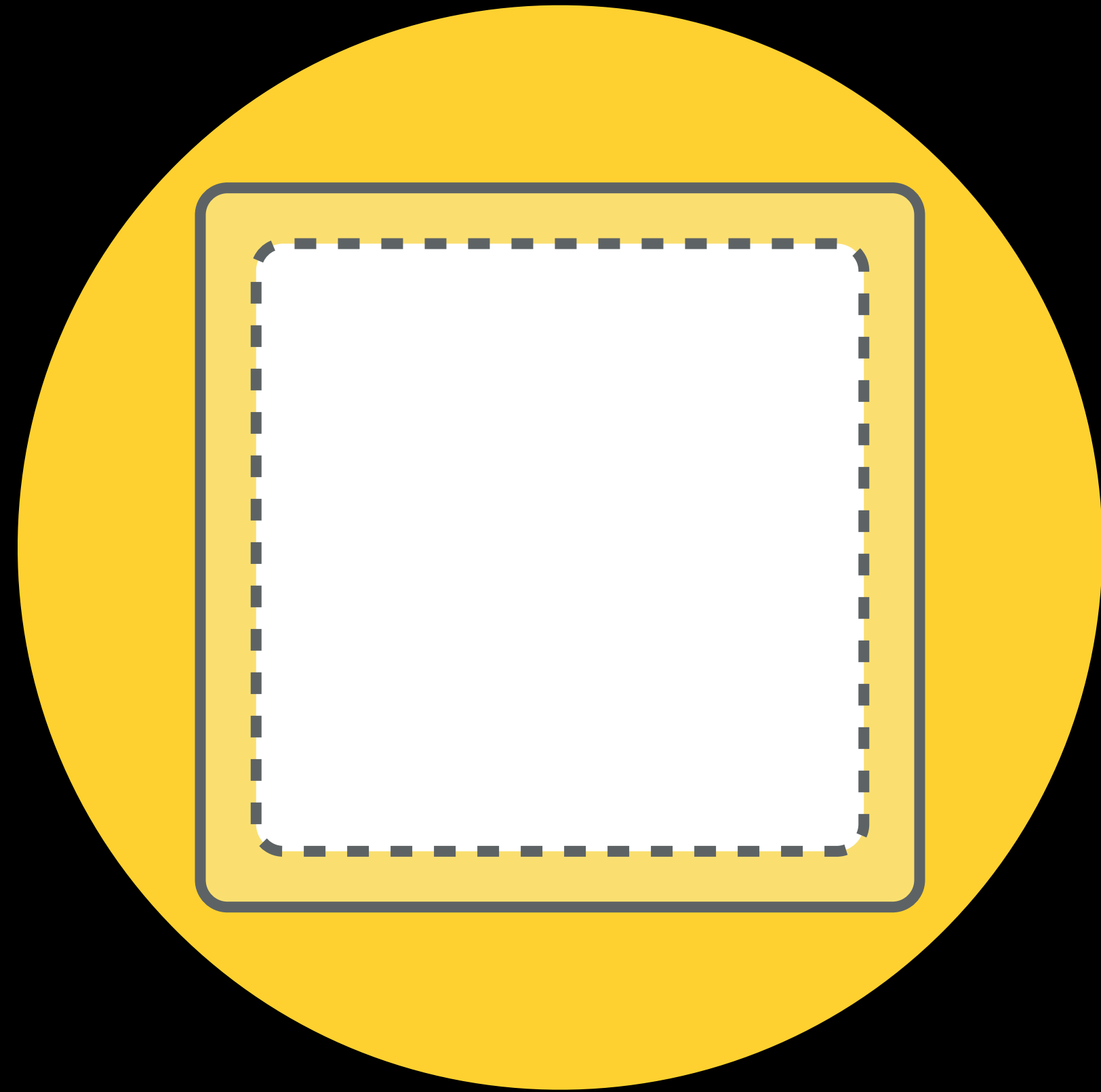
Motion



UIViewController



Text Kit

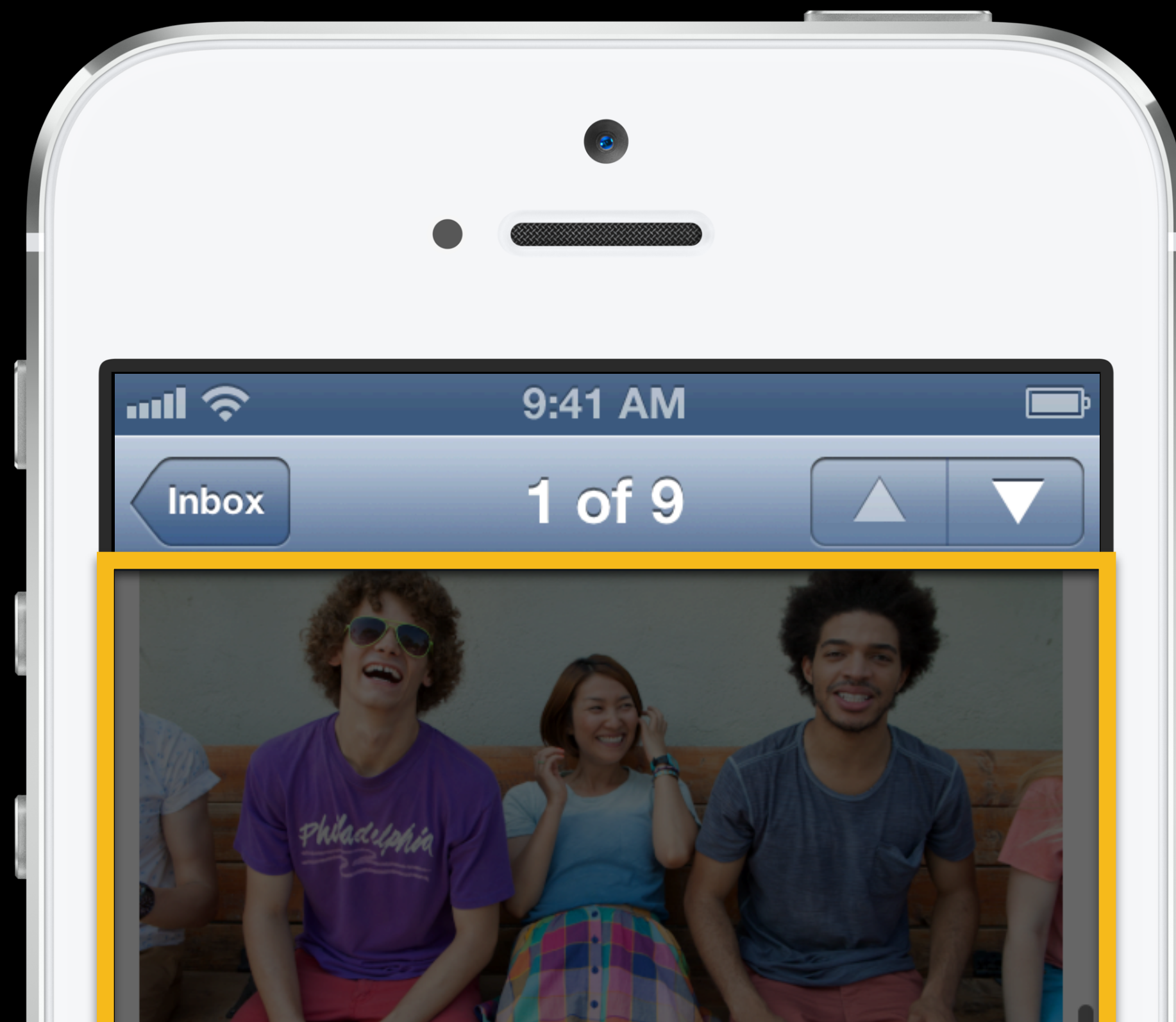


UIViewController

Extended Layout

iOS 6

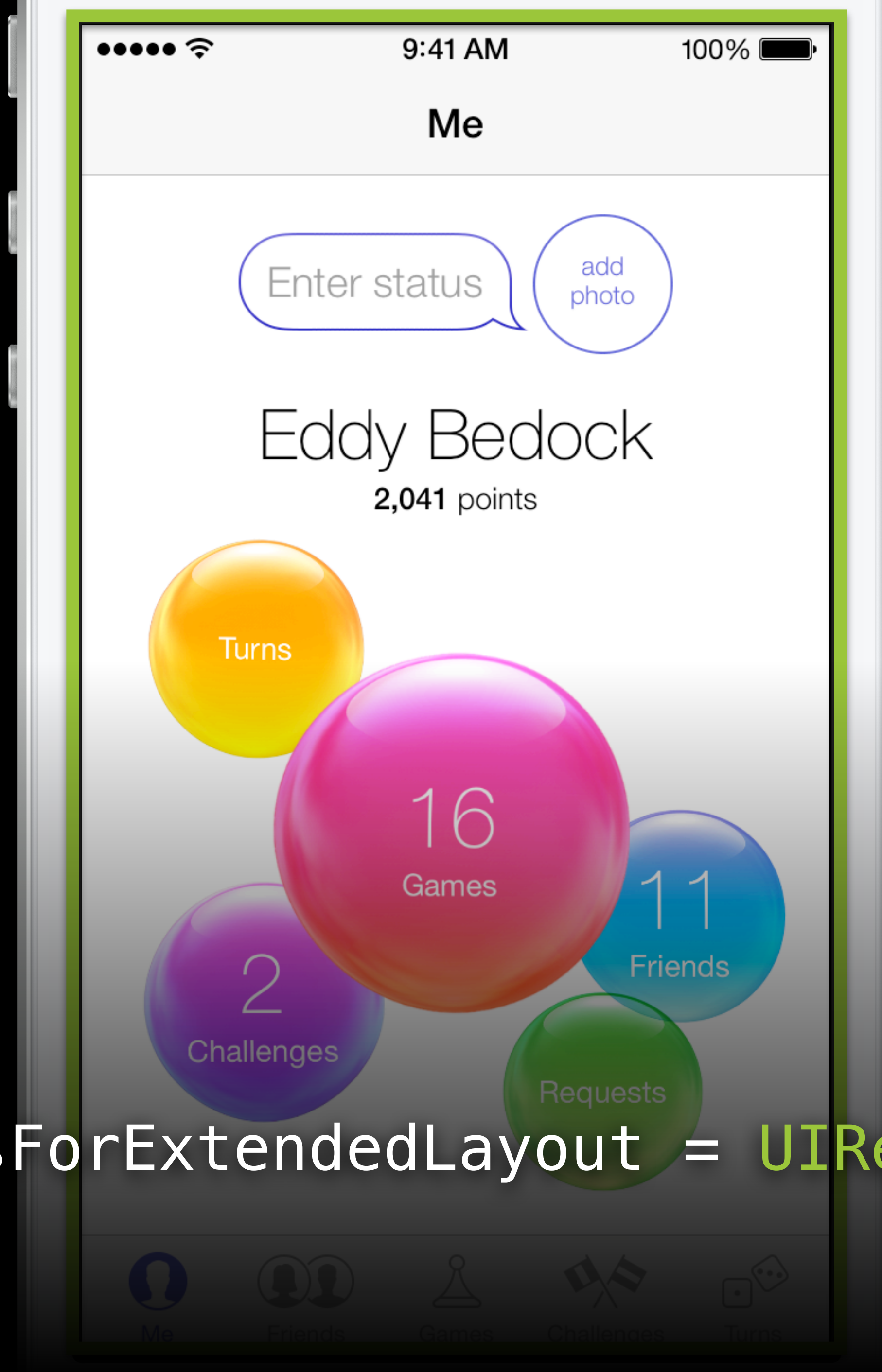
Positioned below bars



iOS 7

Underlaps bars





```
self.edgesForExtendedLayout = UIRectEdgeAll;
```




```
self.extendedEdgesForLayout = UIRectEdgeNone;
```

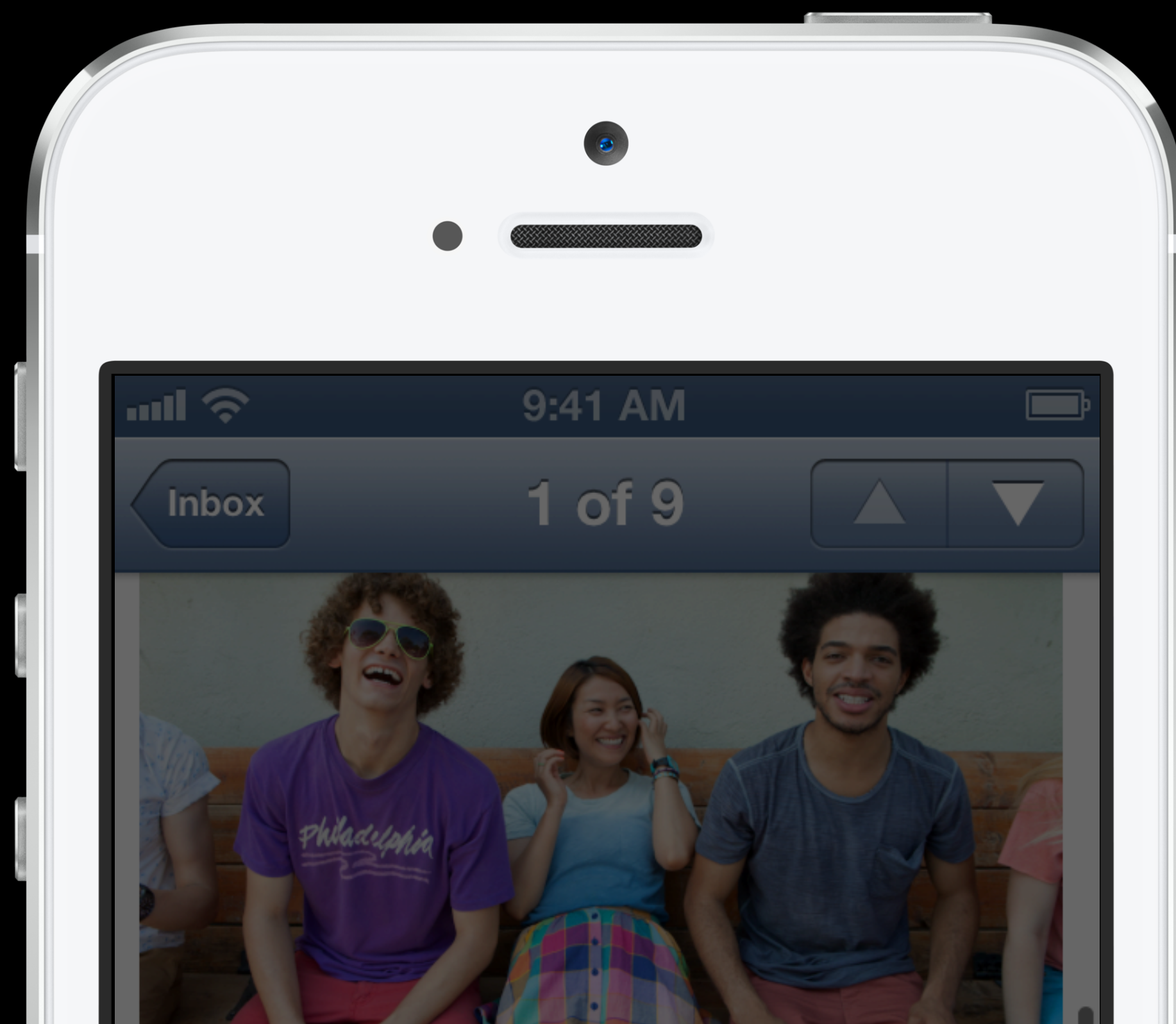

Extended Layout & Scroll Views

iOS 6

None

iOS 7

Automatic

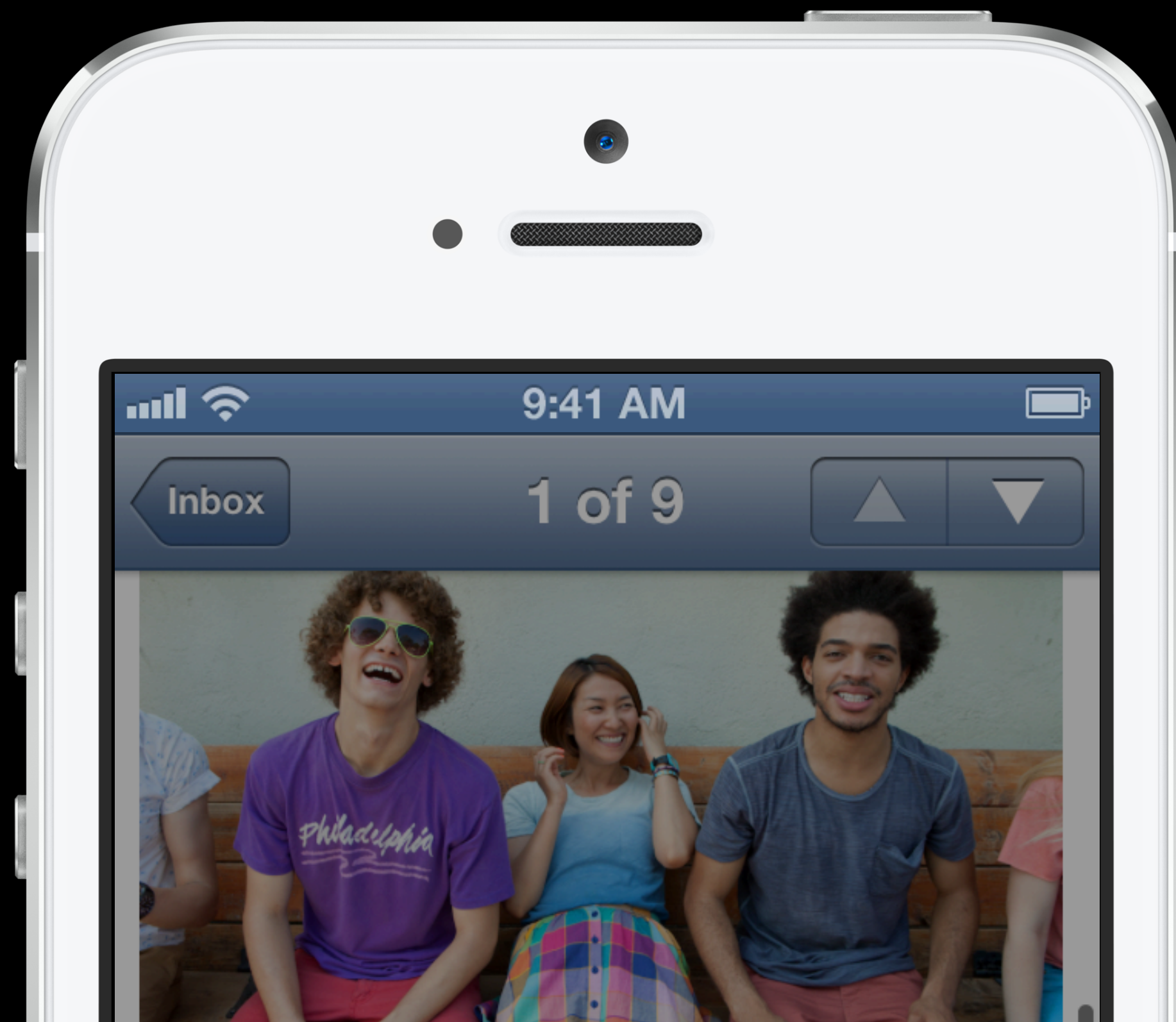


```
self.automaticallyAdjustsScrollViewInsets = YES;
```


Status Bar

iOS 6

Tinted background



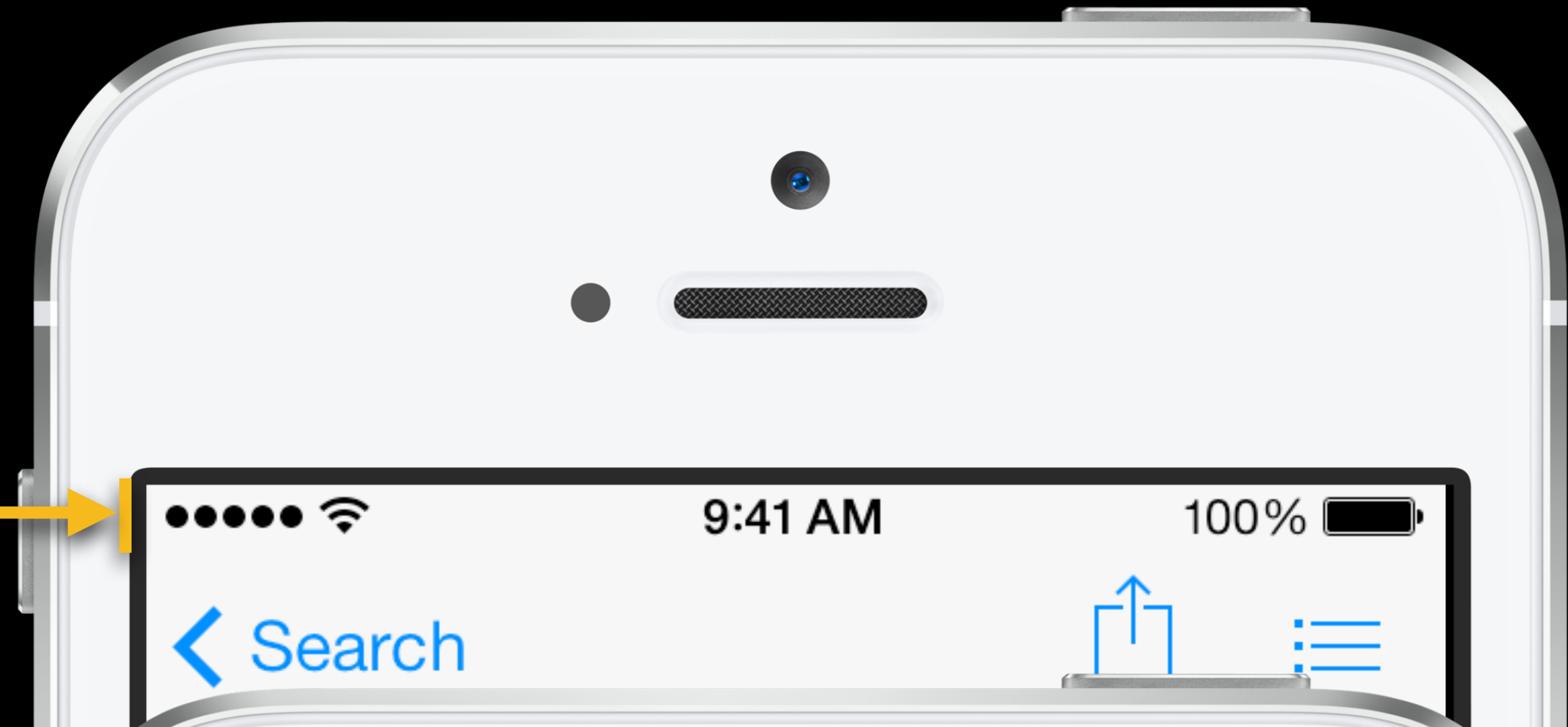
iOS 7

No background



Status Bar Styles

UIStatusBarStyleDefault →



UIStatusBarStyleLightContent →



Status Bar Styles

```
@implementation MyViewController

- (UIStatusBarStyle)preferredStatusBarStyle {
    return UIStatusBarStyleDefault;
}

...

@end
```


Status Bar Visibility

```
@implementation MyViewController

- (BOOL)prefersStatusBarHidden {
    return NO;
}

...

@end
```

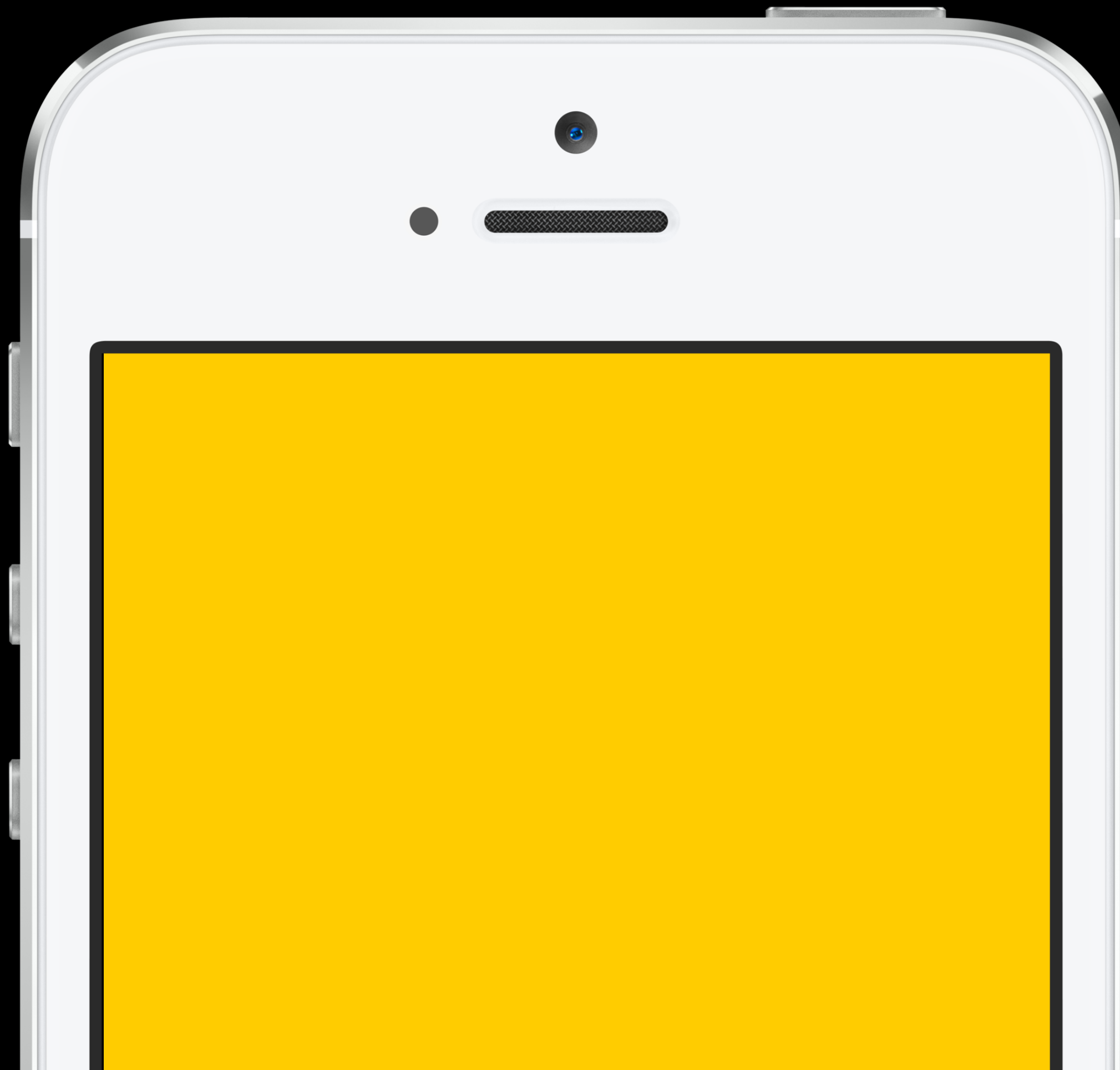
Updating Status Bar Appearance

```
@property BOOL shouldBeHidingStatusBar;  
  
- (BOOL)prefersStatusBarHidden {  
    return self.shouldBeHidingStatusBar;  
}  
  
- (IBAction)hideStatusBar {  
    self.shouldBeHidingStatusBar = YES;  
    [self setNeedsStatusBarAppearanceUpdate];  
}
```

Updating Status Bar Appearance



Updating Status Bar Appearance



Animating Status Bar Appearance

```
@property BOOL shouldBeHidingStatusBar;

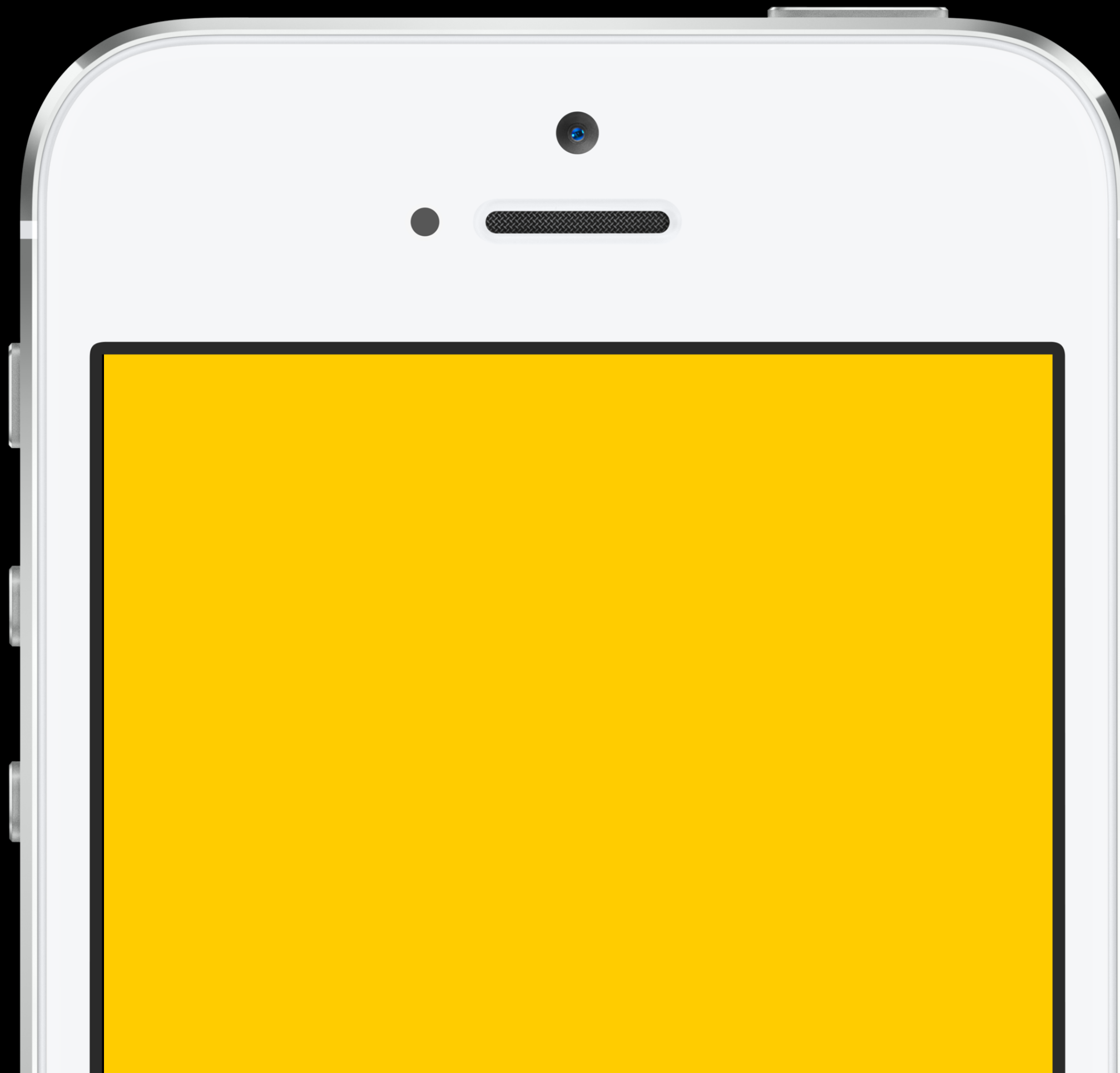
- (BOOL)prefersStatusBarHidden {
    return self.shouldBeHidingStatusBar;
}

- (IBAction)hideStatusBar {
    self.shouldBeHidingStatusBar = YES;
    [UIView animateWithDuration:0.5 animations:^(
        [self setNeedsStatusBarAppearanceUpdate];
    )];
}
```


Updating Status Bar Appearance



Updating Status Bar Appearance



Animating Status Bar Appearance

```
@property BOOL shouldBeHidingStatusBar;
```

```
- (BOOL)prefersStatusBarHidden {  
    return self.shouldBeHidingStatusBar;  
}
```

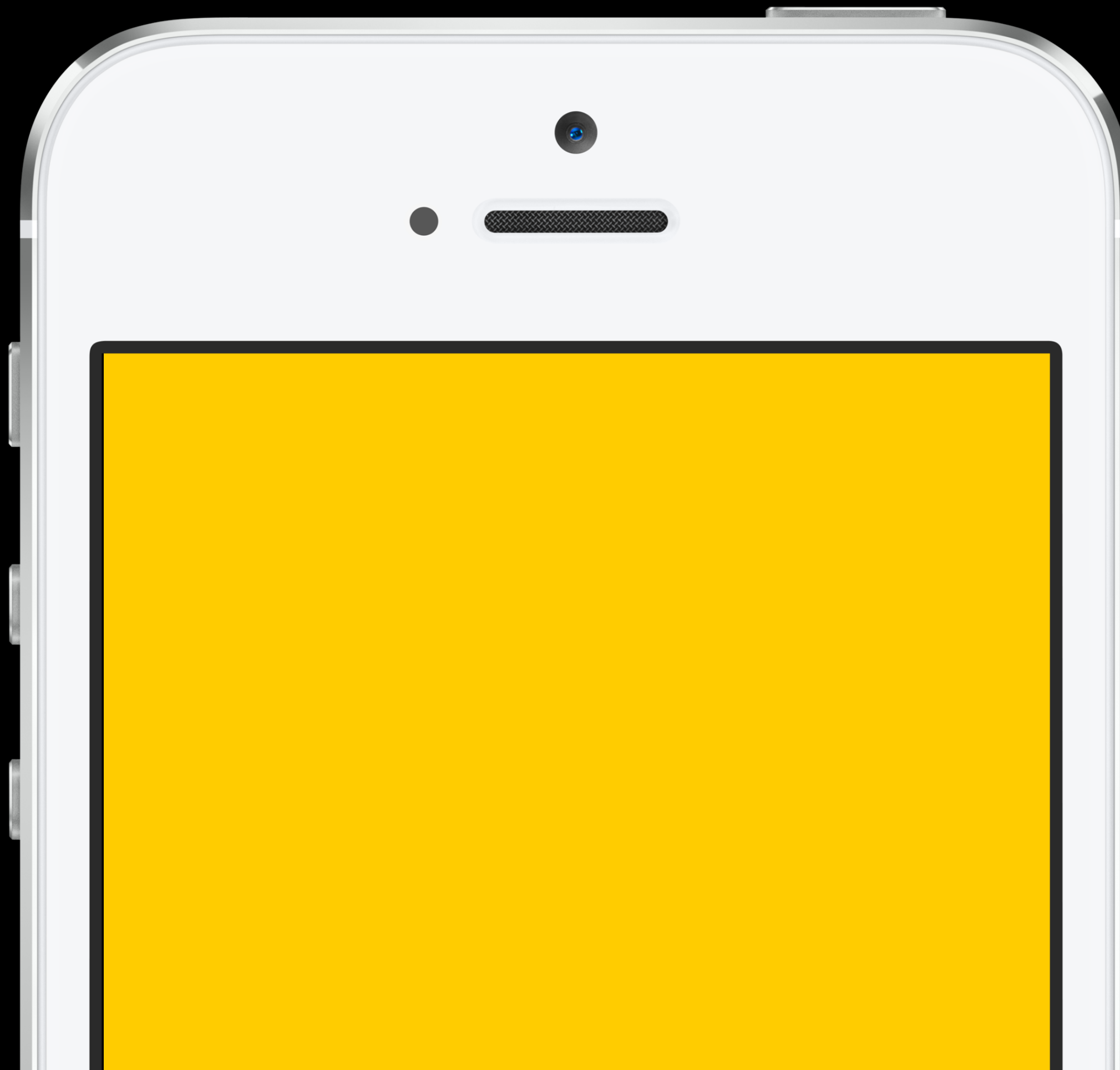
```
- (IBAction)hideStatusBar {  
    self.shouldBeHidingStatusBar = YES;  
    [UIView animateWithDuration:0.5 animations:^(  
        [self setNeedsStatusBarAppearanceUpdate];  
    )];  
}
```

```
- (UIStatusBarAnimation)preferredStatusBarUpdateAnimation {  
    return UIStatusBarAnimationSlide;  
}
```


Updating Status Bar Appearance

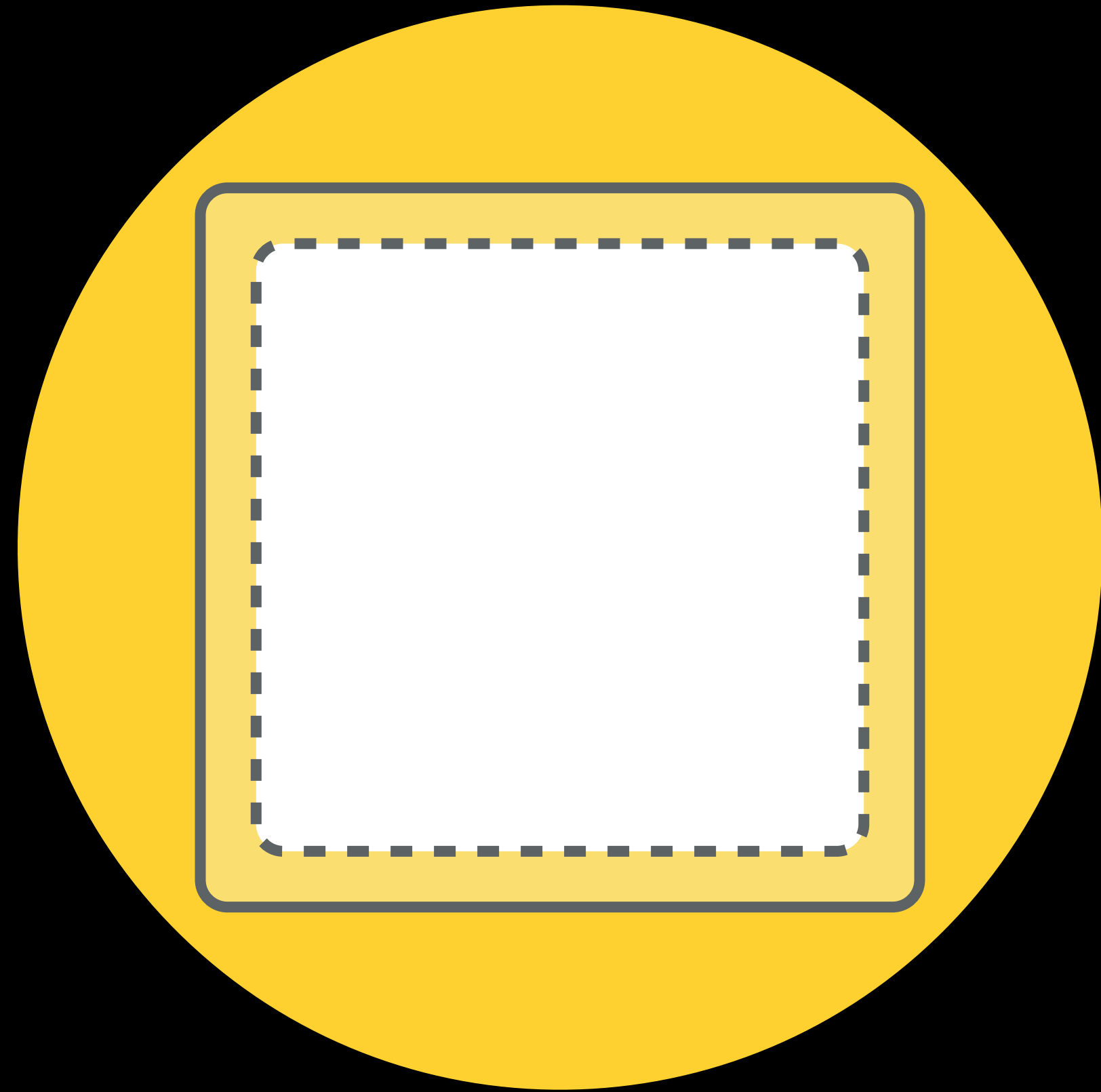


Updating Status Bar Appearance



Status Bar

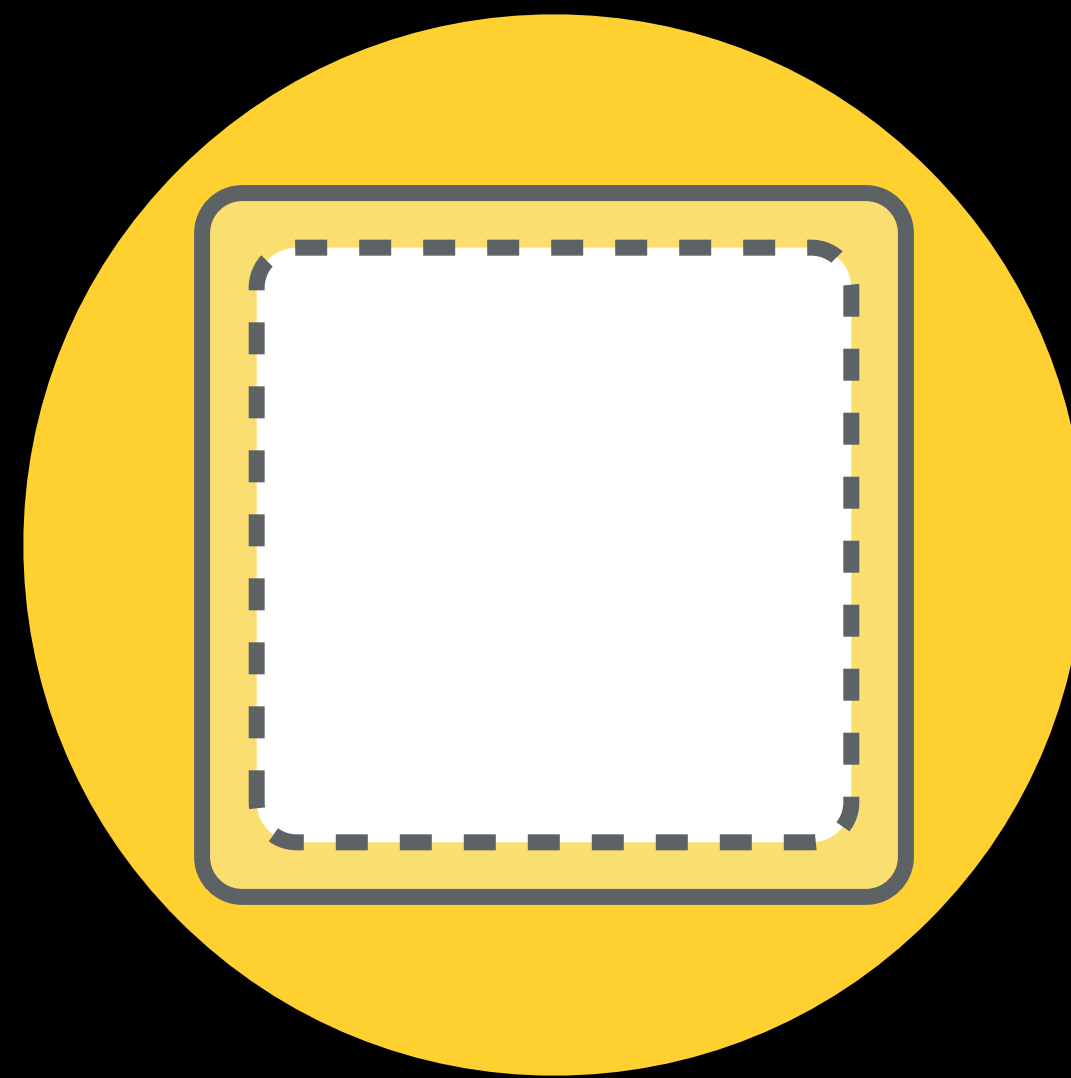
- Customizable per view controller
 - Including child view controllers!
- Control visibility, content style, animation style...
- Customize animation timing



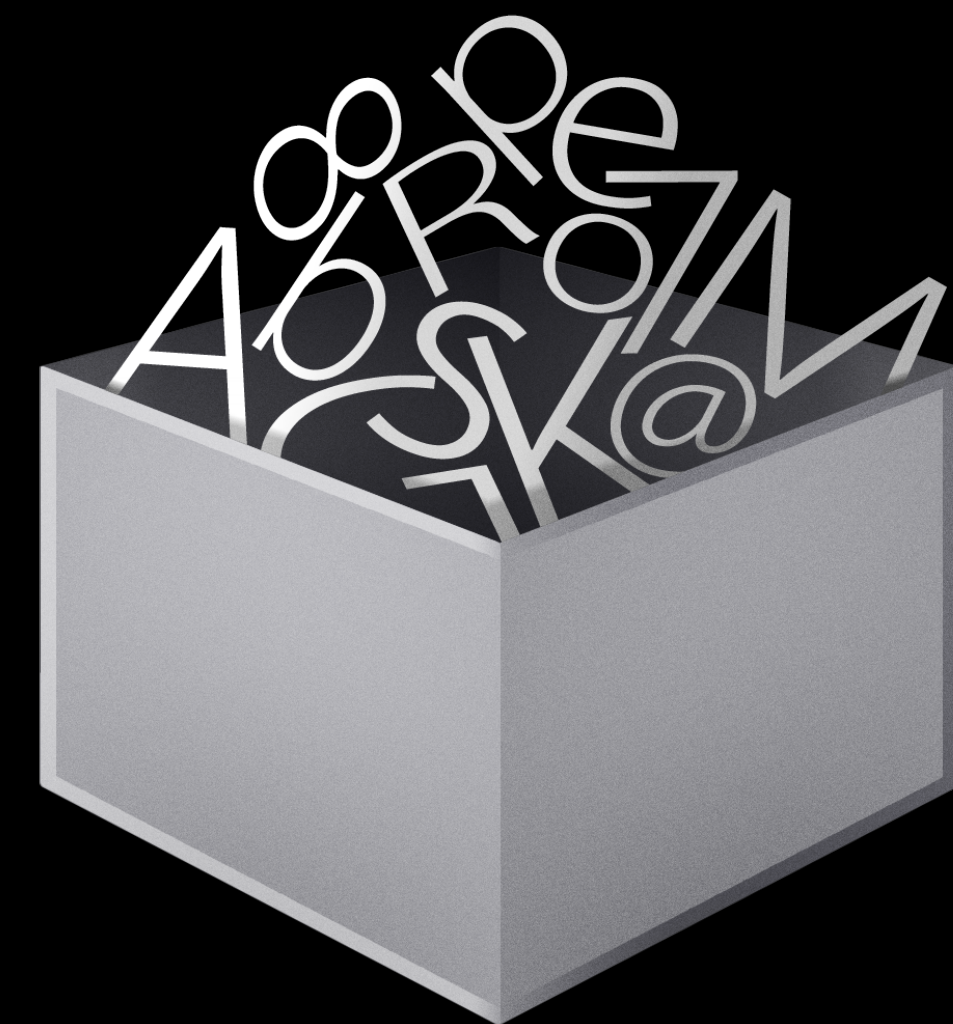
UIViewController



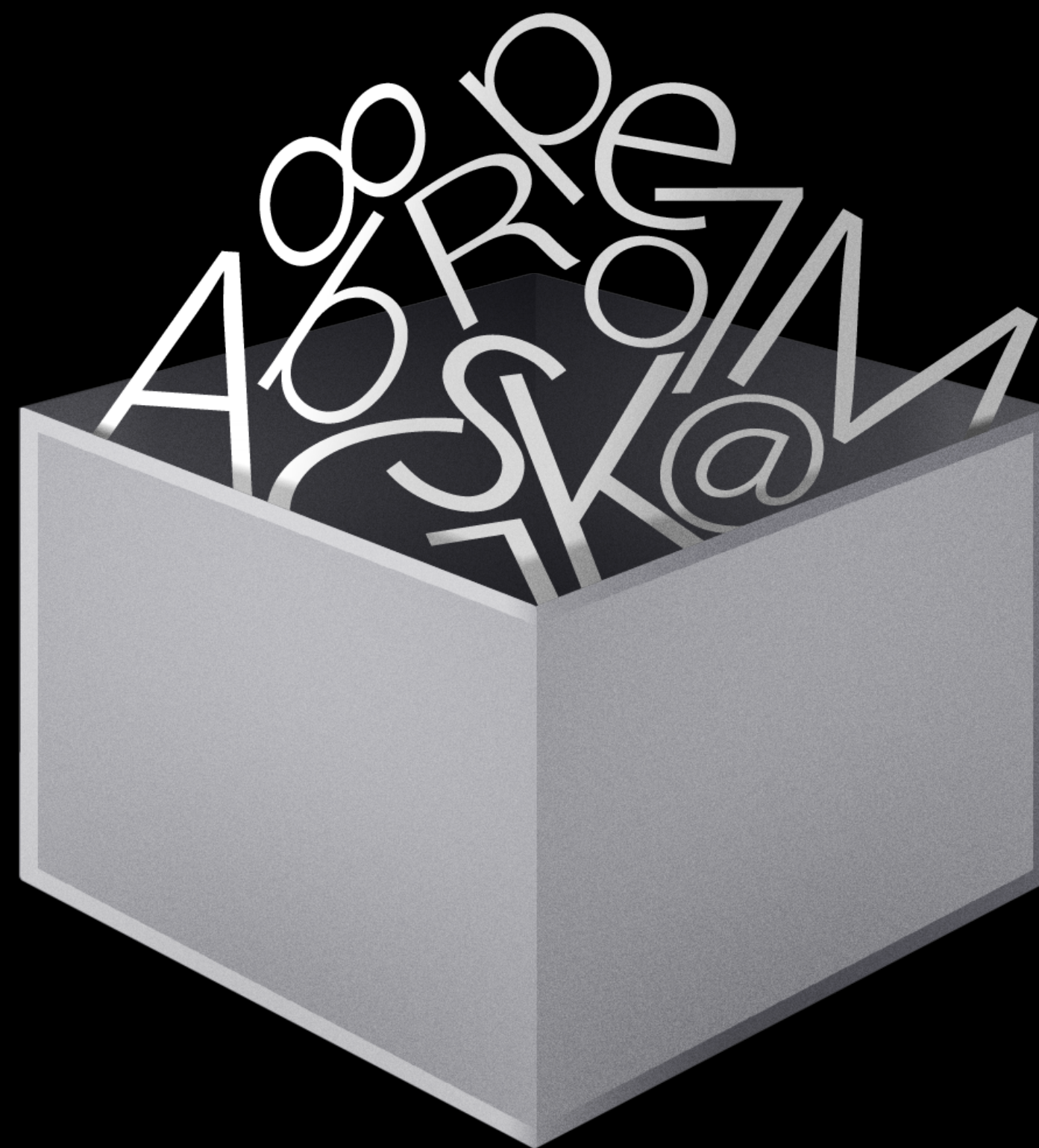
Motion



UIViewController



Text Kit



Text Kit

TACKLING TO THE FINISH

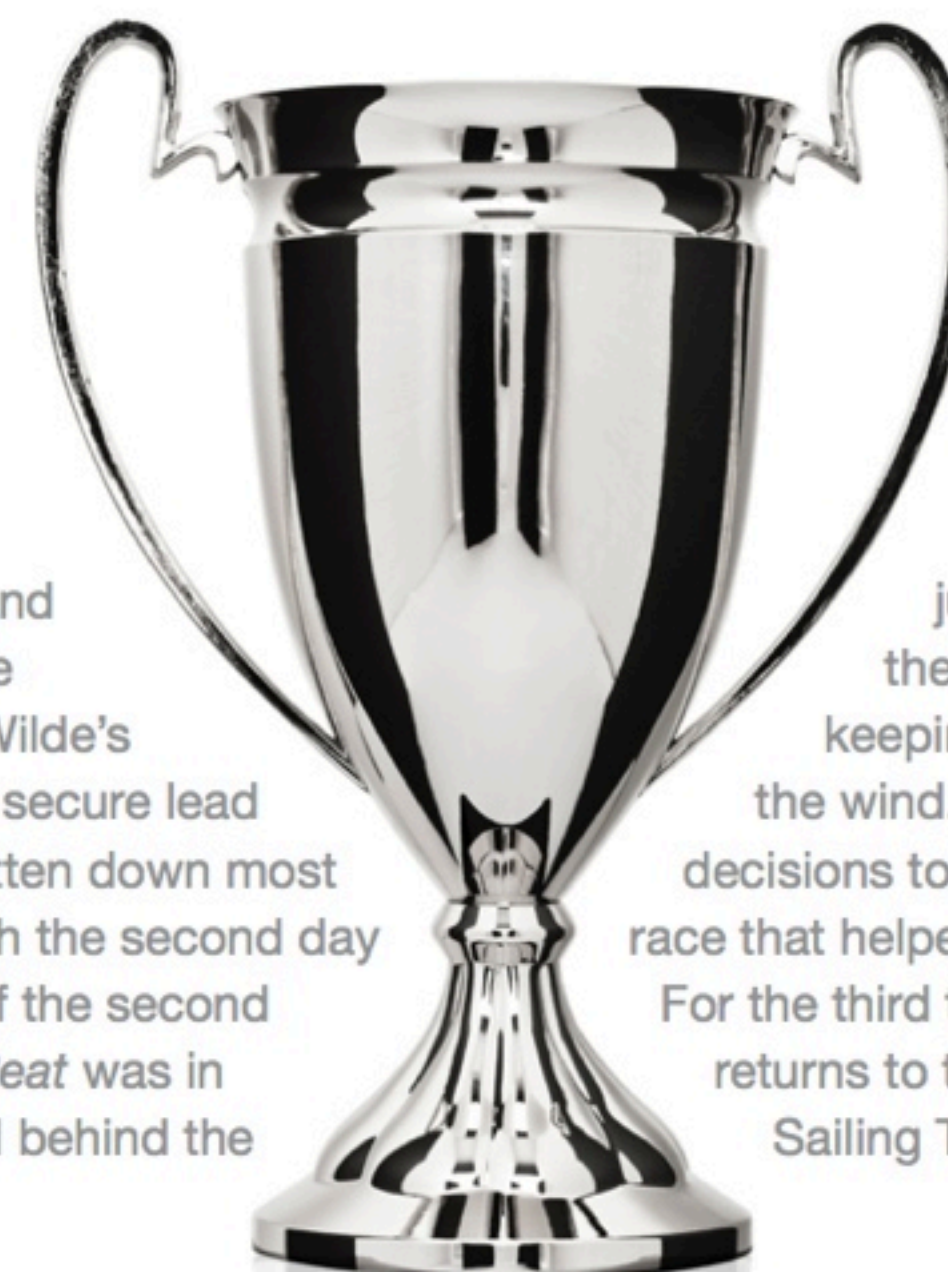
“THE THIRD DAY
CLEARED AND WE
JUST FOCUSED...
REALLY KEPT OUR
SENSES UP FOR
THE WIND.”



FINAL RESULTS

- ▶ **1 BOREAS POINT**
- ▷ 2 COXON WILDE
- ▷ 3 MILTOWN CAPE
- ▷ 4 PENSACOLA IX
- ▷ 5 BOITE GRISE

The Boreas Point crew, led by experienced skipper Meredith Watson, set off in the *Rocket IV* from the picturesque island of Sanibel. From the beginning, Coxon Wilde's *Sitting Pretty* had a secure lead and was able to batten down most successfully through the second day gales. By the end of the second day, the *Gracious Beat* was in third, having lagged behind the



Miltown Chartreuse. “It was a rough couple of days with a few bouncy nights on the nose,” said Watson. “But the third day cleared and we just focused on tacking the best we could, really keeping our senses up for the wind. We made a few key decisions toward the end of the race that helped us catch the lead.” For the third time, the Sanibel Cup returns to the Boreas Point Sailing Team.

Text Kit

Key Features

- Text Styles
- Dynamic Type
- Font Descriptors

Introducing Text Kit	WWDC 2013	
Advanced Text Layouts and Effects with Text Kit	WWDC 2013	
Using Fonts with Text Kit	WWDC 2013	

Text Kit

Text Styles

Headline

Subheadline

Body

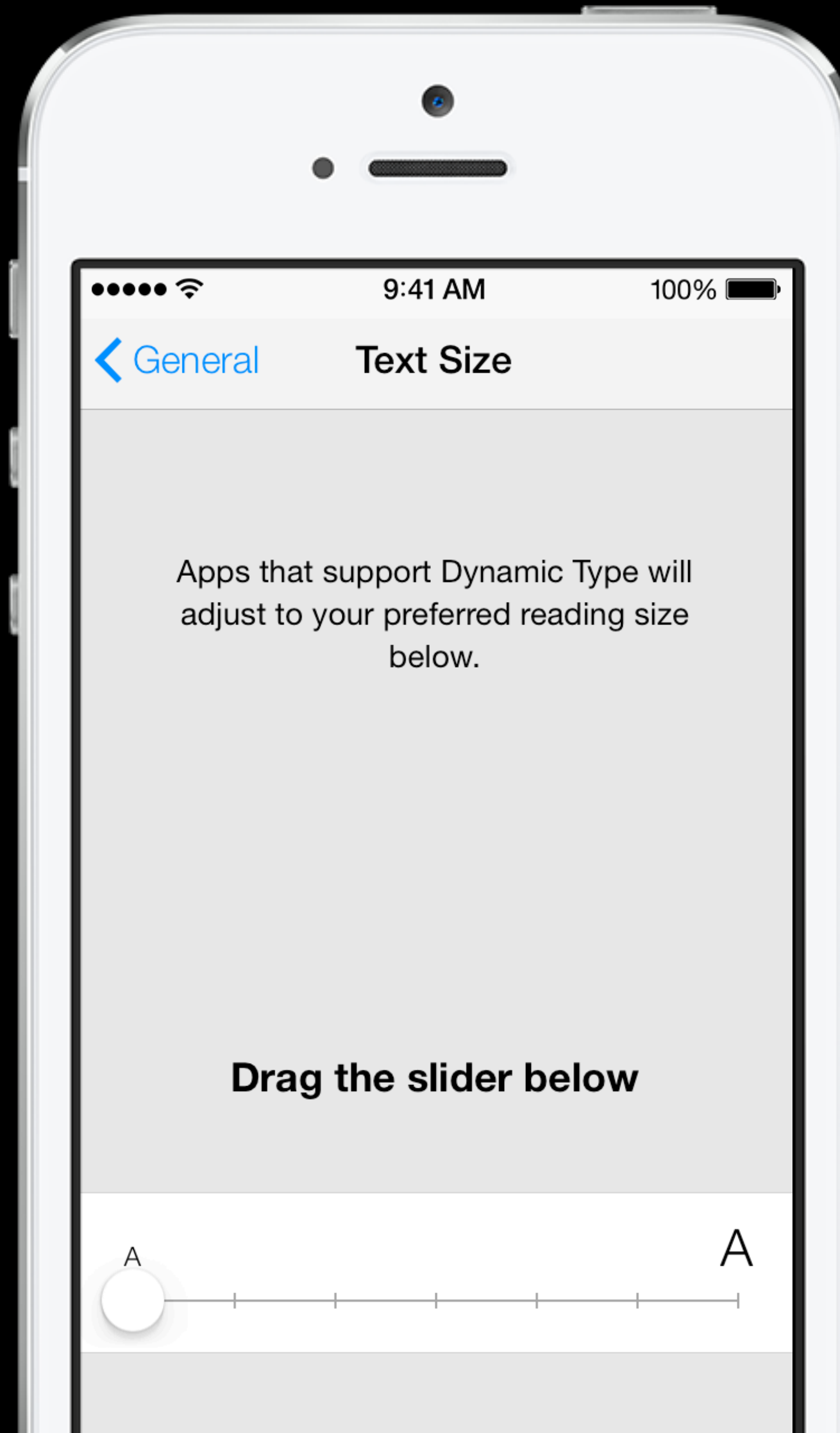
Footnote

Caption 1

Caption 2

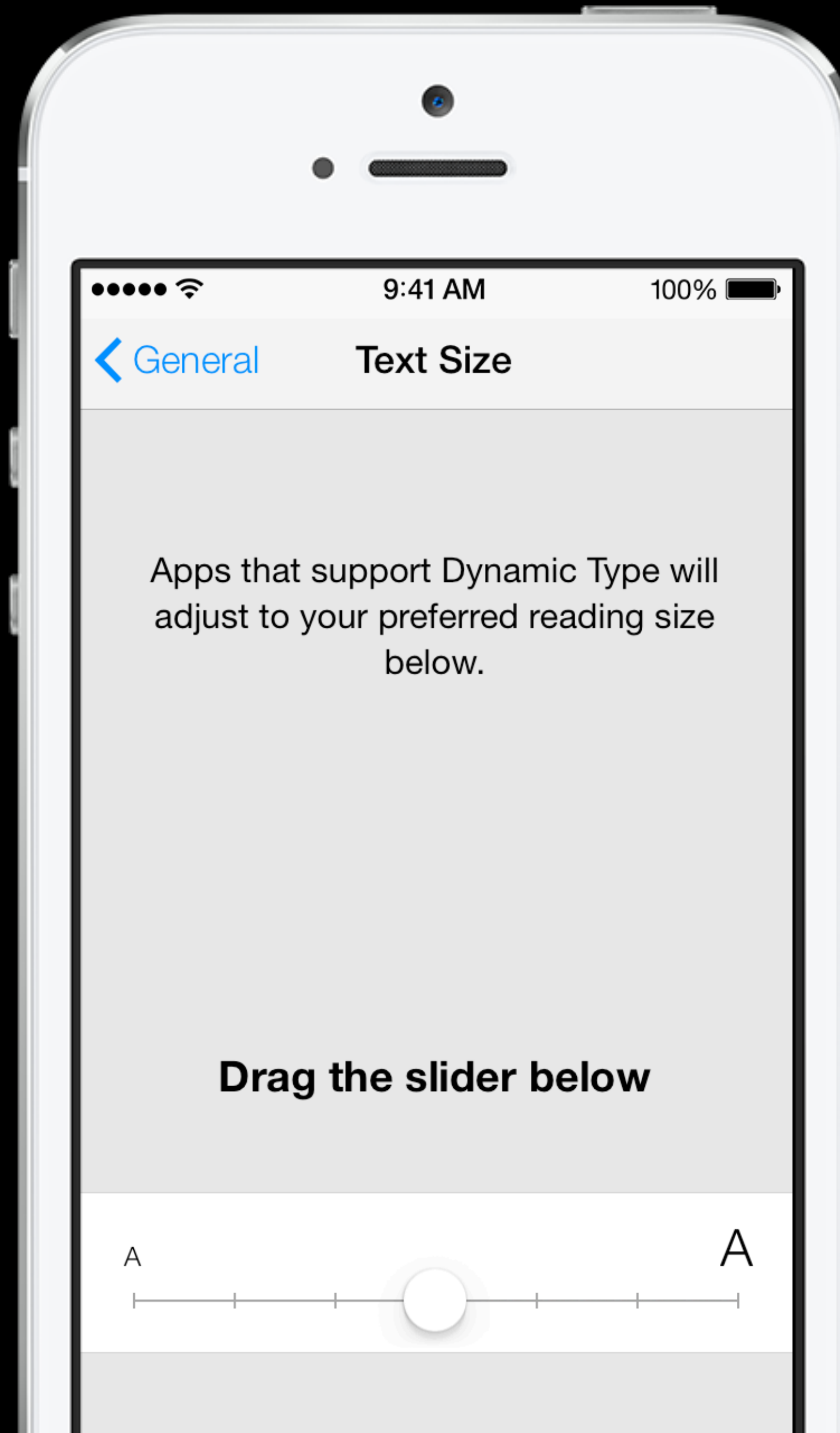
Text Kit

Dynamic Type



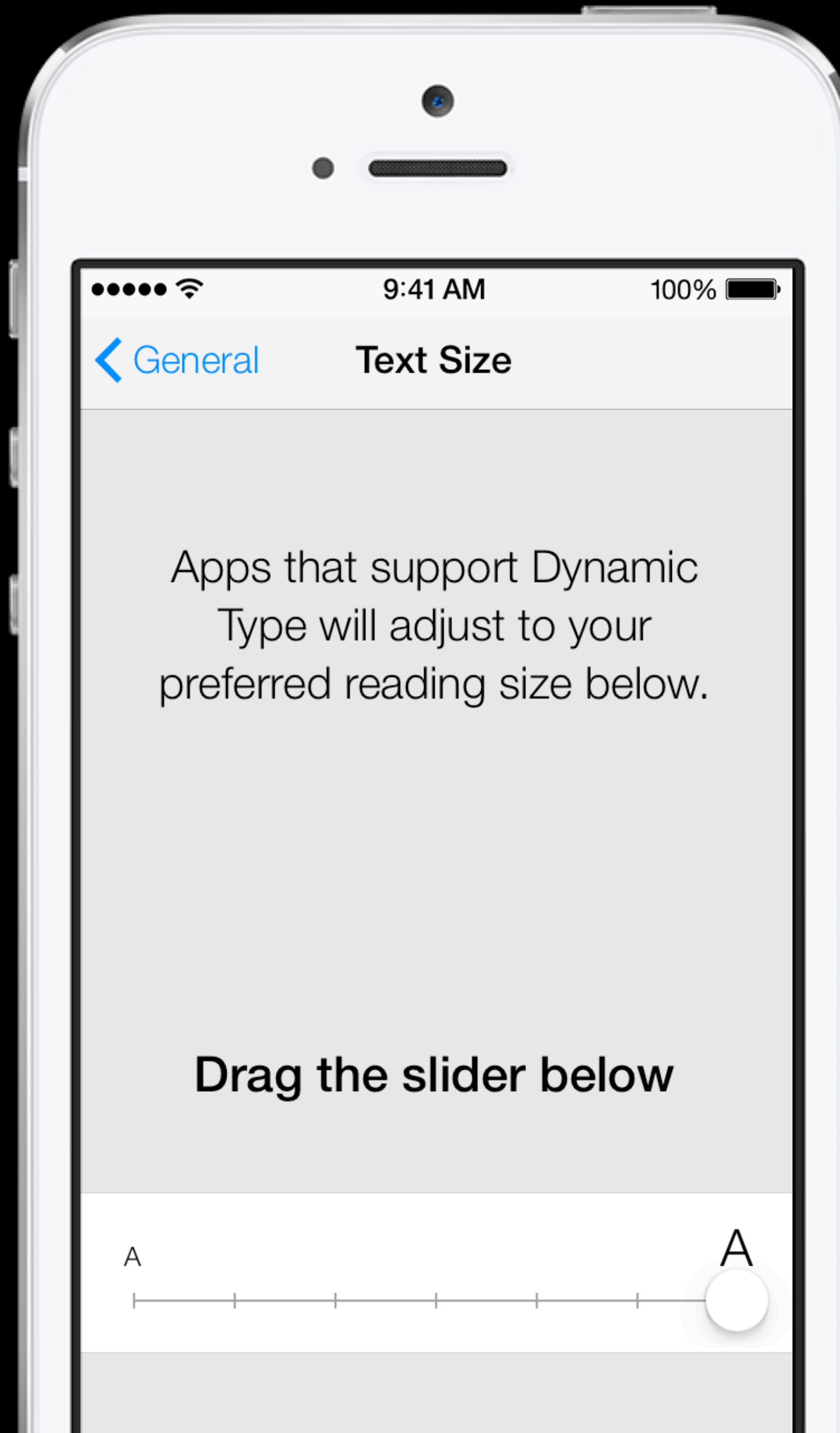
Text Kit

Dynamic Type

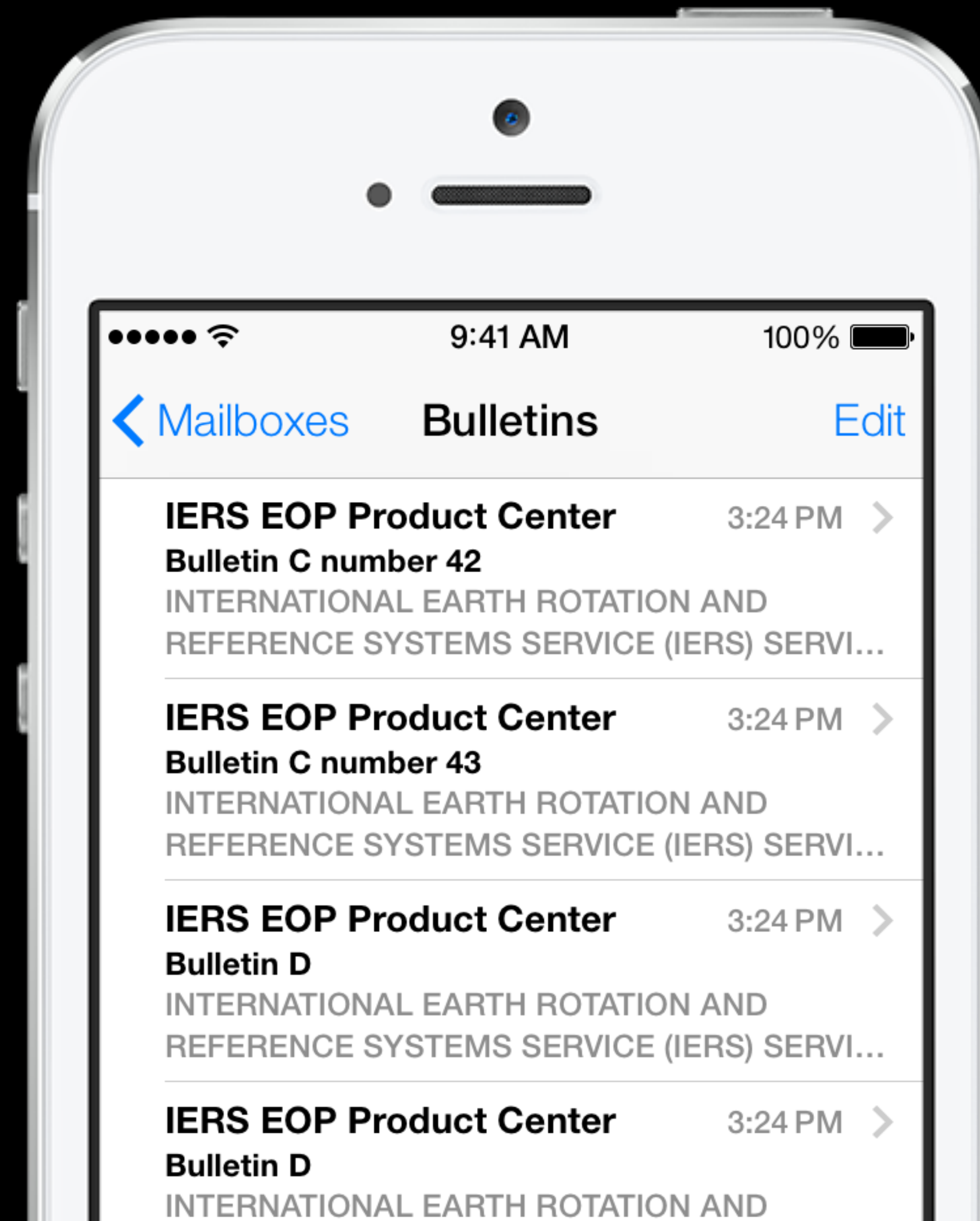


Text Kit

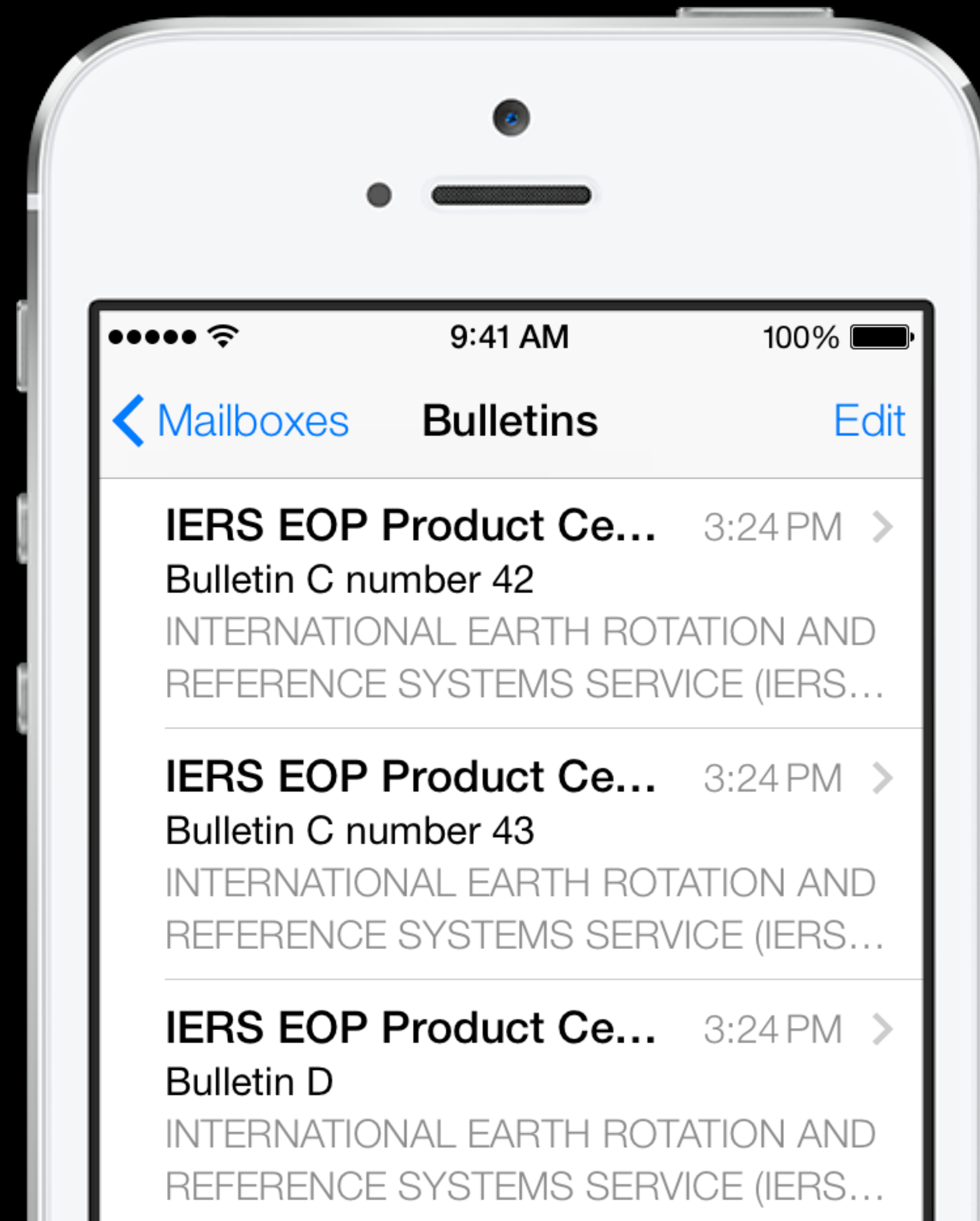
Dynamic Type



Dynamic Type



Dynamic Type



Dynamic Type



Text Kit

Dynamic Type

- Using text styles gets you dynamic type
- Listen for the notification & react to it
 - `UIContentSizeCategoryDidChangeNotification`

Text Kit

Font Descriptors

- Font “model”
- Compose fonts
- Cheap and archivable
- Should be commonly used
 - Fonts are “last mile” objects
- Emulate Dynamic Type for custom fonts

Dynamic Type & Custom Fonts

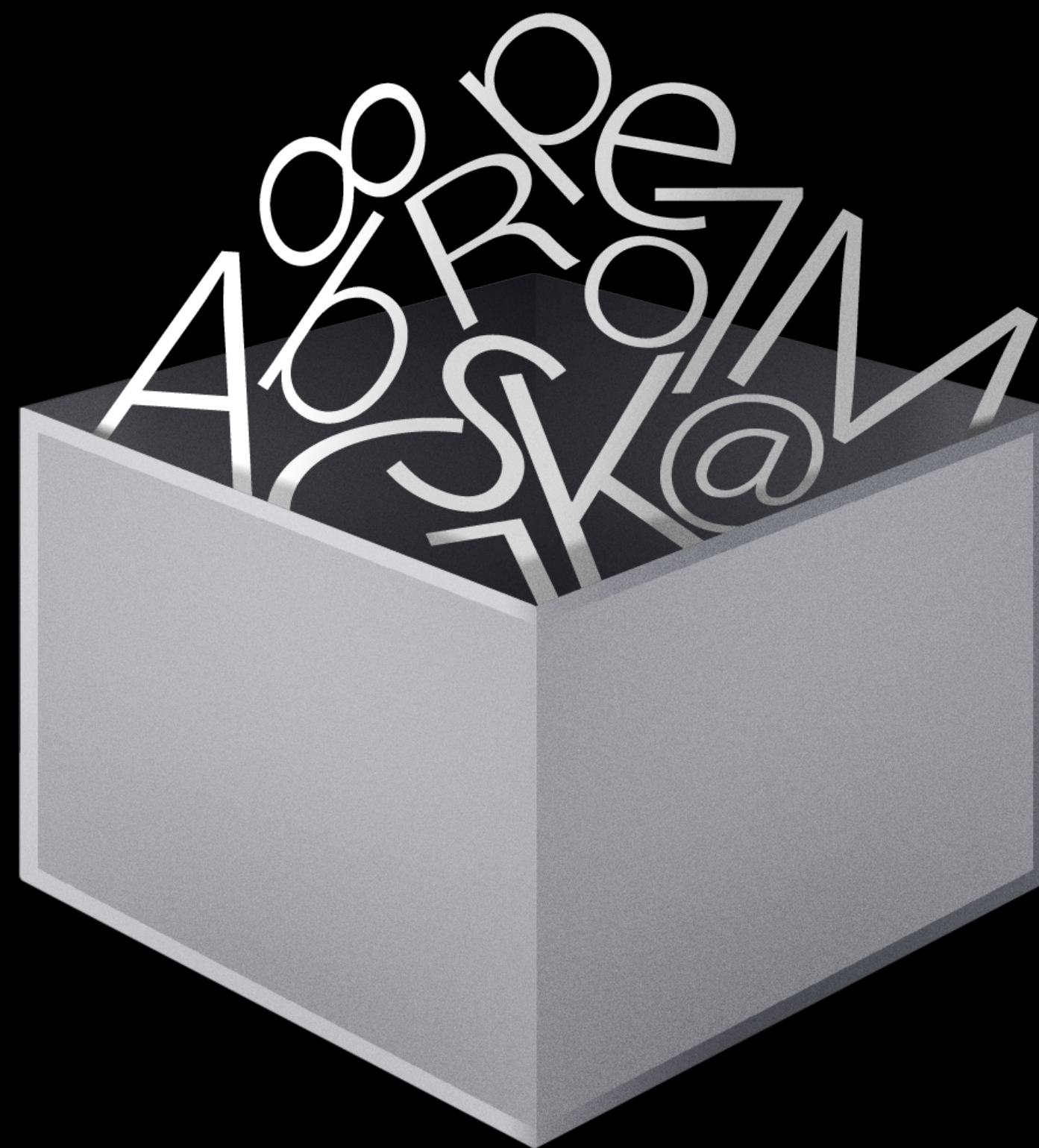
```
NSNotificationCenter *center = [NSNotificationCenter defaultCenter];  
[center addObserver:self  
    selector:@selector(dynamicTypeChanged:)  
    name:UIContentSizeCategoryDidChangeNotification  
    object:nil];
```

Dynamic Type & Custom Fonts

```
- (void)dynamicTypeChanged:(NSNotification *)note {  
    UIApplication *app = [UIApplication sharedApplication];  
    NSString *category = app.preferredContentSizeCategory;  
  
    if ([category isEqual:UIContentSizeCategorySmall]) {  
        ...  
    } else if ([category isEqual:UIContentSizeCategoryMedium]) {  
        ...  
    } else if ([category isEqual:UIContentSizeCategoryLarge]) {  
        ...  
    } else ...  
}
```


Adopting TextKit

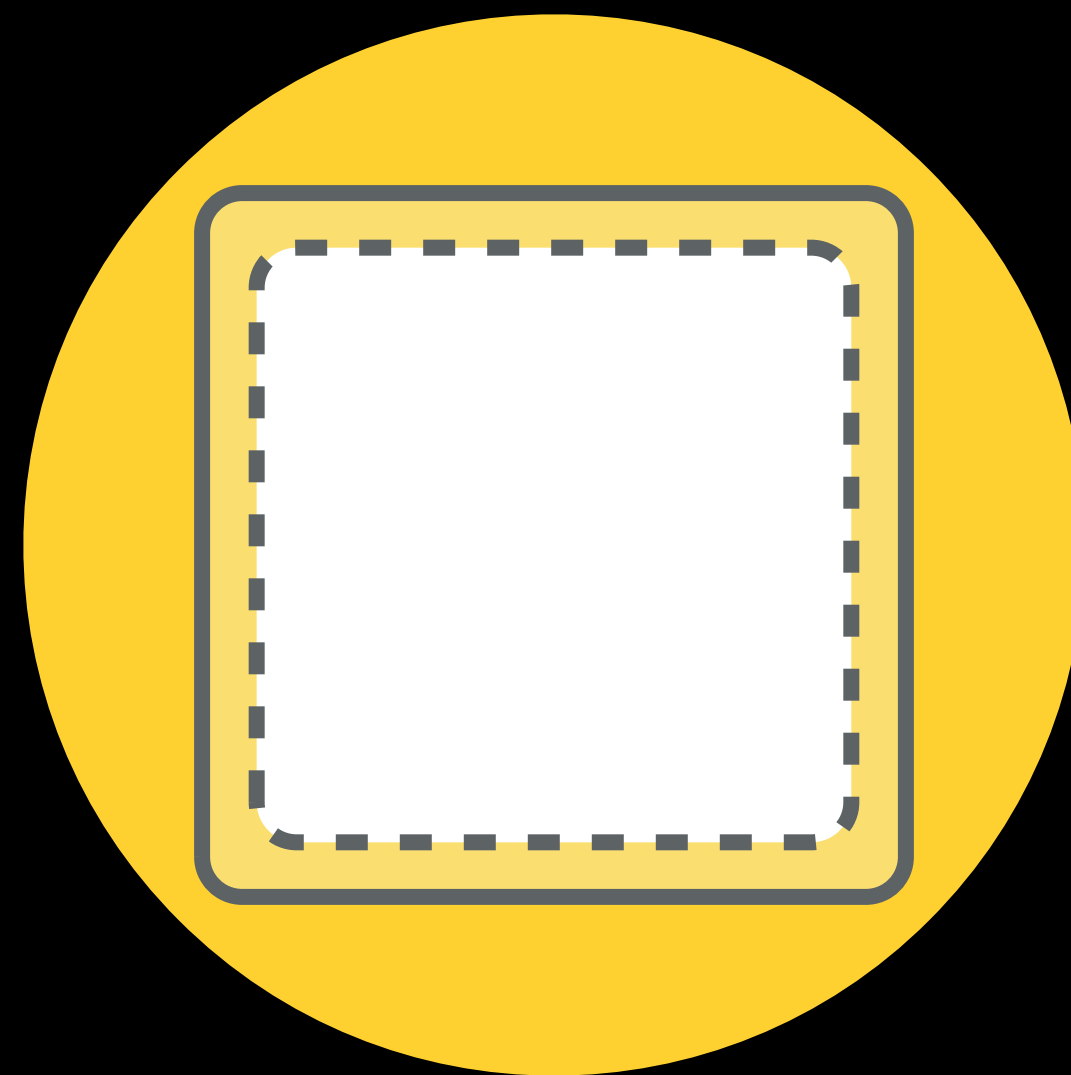
- Use preferred text styles
- Use UIFontDescriptor
- Listen to Dynamic Type notification



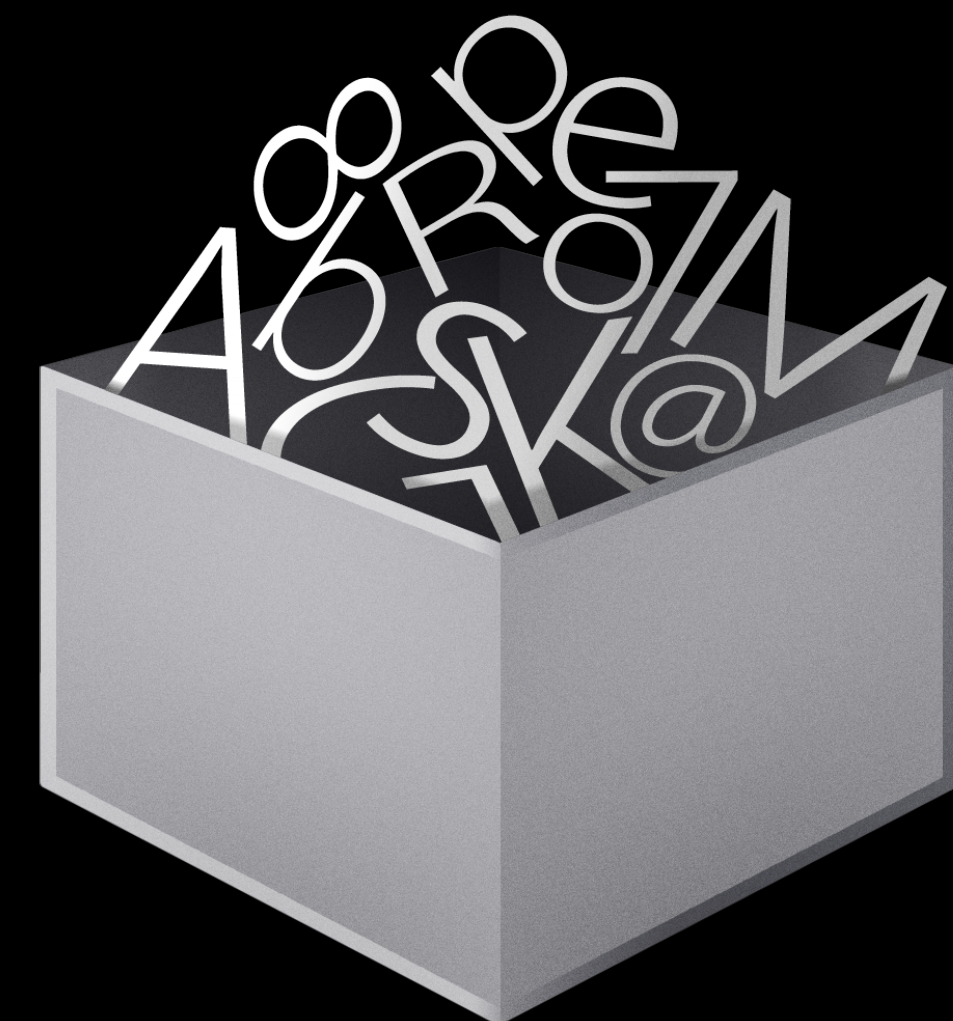
Text Kit



Motion



UIViewController



Text Kit

